



MAXXAM ANALYTICS
#1 2080 39 Ave. NE, Calgary, AB
T2E 6P7

maxxam.ca
Toll Free 800-386-7247
Fax 403-219-3673

(REVISION)

AMBIENT AIR MONITORING MONTHLY DATA REPORT
PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
THREE CREEKS 842B STATION

JOB #: 8449-2018-11-80-C

November 2018

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: LILY LIN

DATE: January 7, 2019

This report supersedes all previous reports with the same Maxxam project number.

Prepared by:

Wunmi Adekanmbi, M.Sc., EPT, PMP
Project Team Lead, Customer Service, Air Services

Reviewed by:

Cheri Sinclair, B.Sc.
Supervisor, Customer Service, Air Services

SUMMARY

This is a revision. Station Temperature readings recorded in the Monthly Continuous Data Summary (Page 3) were updated.

In November 2018, Maxxam Analytics was contracted to manage the ambient air quality monitoring and maintenance activities at the Three Creeks 842b Station, near Peace River Oil Sands Area 2, Alberta. The monitoring station provides continuous meteorological measurements and air quality data for non-compliance parameters, as requested by the PRAMP Committee.

All data collected this month was compliant with the requirements outlined in the Air Monitoring Directive (Alberta Environment and Parks, 2016).

The operational time for all continuous ambient air analyzers, meteorological systems and data acquisition systems were above the 90% requirement.

All data collected this month were within the Alberta Ambient Air Quality Objectives and Guidelines (November, 2018).

Gas Parameters: The automated daily zero-span check, scheduled for hour 13:00 on November 24, failed to execute. A valid zero-span check was manually completed at hour 14:00 of the same day. One hour of downtime was incurred due to the failed execution.

THC/CH₄/NMHC:

- A shut-down calibration attempt on November 20 did not meet AMD requirements due to poor sample injections. The analyzer (Thermo 55i, s/n: 1433563261) was removed for maintenance and a replacement (Thermo 55i, s/n: 1505664392) was installed. Data was invalidated back to the point of failed performance, determined as November 18 at hour 20:00. Sixty-four one hours of downtime were incurred due to this event.

The summary of results is presented on the following pages.

Any deviations or modifications made to the sampling or analytical methods are outlined in Section 1.0, Discussion. On this basis, Maxxam Analytics is issuing this completed report to Peace River Area Monitoring Program Committee.

Should you have any questions concerning the results or if we can be of further assistance, please contact us at 403-219-3661 or toll-free at 1-800-386-7247.

Monthly Continuous Data Summary

Peace River Area Monitoring Program Committee						MAXIMUM VALUES							OPERATIONAL TIME (%)
Three Creeks 842b Station						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDANCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (kph)	WIND DIRECTION (sector)	READING	DAY	
	1-hr	24-hr	1-hr	24-hr									
SO ₂ (ppb)	172	48	0	0	0	1	13	15	12.1	S	0	1	99.9
TRS (ppb)	-	-	-	-	0.22	0.50	4	5	11.4	NE	0.27	4	99.9
THC (ppm)	-	-	-	-	2.03	2.50	28	8	11.0	SSW	2.15	28	91.0
CH ₄ (ppm)	-	-	-	-	2.03	2.37	8	7	3.0	ENE	2.14	25	91.0
NMHC (ppm)	-	-	-	-	0.00	0.16	28	8	11.0	SSW	0.01	28	91.0
RELATIVE HUMIDITY (%)	-	-	-	-	83	97	28	6	9.3	S	93	29	100.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	941	963	11	11	5.3	SSE	961	16	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	-5.4	5.6	21	14	6.1	SSE	2.7	13	100.0
STATION TEMPERATURE (°C)	-	-	-	-	22.5	23.7	8	6	2.5	ENE	23.2	16	100.0
VECTOR WS (kph)	-	-	-	-	2.4	20.3	20	6	-	SSW	12.3	13	100.0
VECTOR WD (sec)	-	-	-	-	179 (S)	-	-	-	-	-	-	-	100.0

SOUR GAS PROCESSING INDUSTRY
MONTHLY REPORT SUMMARY

Three Creeks 842b Station

Peace River Area Monitoring Program Committee

Plant Name / Location

Company

Licence Number	Report Date	
	YEAR	MONTH
N/A	2018	November

CONTINUOUS AMBIENT MONITORING							
		ONE - HOUR AVERAGE		24 - HOUR AVERAGE			
PARAMETER	% TIME OPERATIONAL	MAXIMUM VALUES		NO. READINGS > REGULATION	MAXIMUM VALUES		NO. READINGS > REGULATION
SO ₂	99.9	0.001	ppm	0	0.000	ppm	0
TRS	99.9	0.001	ppm	-	0.000	ppm	-
THC	91.0	2.50	ppm	-	2.15	ppm	-
CH ₄	91.0	2.37	ppm	-	2.14	ppm	-
NMHC	91.0	0.16	ppm	-	0.01	ppm	-
RH	100.0	97	%	-	93	%	-
BP	100.0	963	mb	-	961	mb	-
Ambient TPX	100.0	5.6	°C	-	2.7	°C	-
Station TPX	100.0	21.3	°C	-	23.7	°C	-
Wind Speed	100.0	20.3	kph	-	12.3	kph	-
Wind Direction	100.0	-		-	-		-

SIGNATURE OF COMPANY REPRESENTATIVE

FOR ALBERTA ENVIRONMENT USE ONLY

* Precipitation: data represents the total (sum) for the indicated time frame.

Exceedance Summary Report

SO₂ 1-Hour Exceedances

Measured concentrations of sulphur dioxide were below the 1-hour AAAQO of 172 ppb.

SO₂ 24-Hour Exceedances

Measured concentrations of sulphur dioxide were below the 24-hour AAAQO of 48.0 ppb.

In accordance with EPEA and the Substance Release Regulation.

In accordance with A Guide to Release Reporting and the Alberta Ambient Air Quality Objectives and Guidelines Summary.

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1.0 Discussion

This monthly report consists of continuous monitoring results for the following parameters: Sulphur Dioxide (SO₂), Total Reduced Sulphur (TRS), Total Hydrocarbon (THC), Methane (CH₄), Non-Methane Hydrocarbon (NMHC), Relative Humidity (RH), Barometric Pressure (BP), Ambient Temperature (AmbTPX), Station Temperature (StnTPX), Wind Speed (WS) and Wind Direction (WD).

The sample inlet filter for all continuous air analyzers are replaced before the calibration begins. The sample manifold is cleaned during the site visit each month.

Control checks, consisting of a zero and span, are conducted daily on all continuous air monitors. In place of the air sample, zero air (from scrubbed air or gas cylinders) is used for zero checks, and a known concentration of the pollutant being analyzed is used for span checks. These checks are controlled by automatic timers and valves. The total zero span cycle is completed within an hour, the commencement of the zero span cycle is at the beginning of the hour.

Multipoint calibrations are done a minimum of once a month for each continuous air monitor. An additional calibration is required under the following conditions: 1) within three days after the initial start-up and stabilization of a newly installed instrument, 2) prior to shut-down or moving of an instrument which has been working to specification, and 3) when major repair has been done on the instrument.

Time during the first multi-point calibration is not considered downtime (Data is flagged as C). If more than one calibration is performed during the month, the time during the additional calibration is considered as downtime (Data is flagged as C1).

Only one zero/span check is run per day. Time during the zero/span check is not considered as downtime (Data is flagged as S). If an extra zero/span check is performed, the time during the additional check is considered as downtime (Data is flagged as S1).

The AMD requires each instrument and accompanying data recording system to be operational 90% of the time, at a minimum, for each monthly monitoring period.

All sampling, analysis, and QA/QC for this project was performed by Maxxam Analytics and complies with the Alberta Air Monitoring Directive.

Data contained in this monthly report has undergone verification and validation based on the requirements of the AMD (December, 2016) Chapter 6: Ambient Data Quality and Chapter 9: Reporting. The descriptions of the data verification and validation process can be found in Section 5 of this report. Instantaneous data, where applicable, is provided for reference purposes and has not undergone zero correction. The minimum and maximum statistics are highlighted in the data table and are for reference only. The highlighted cells are based on the software's interpretation of the exact position of the minimum or maximum value. The visual presentation of these statistics may not be the obvious choice in a data range due to rounding, truncating or analyzer specifications.

Hourly/minute data have been reviewed based on daily zero/span results and multi-point calibration results. Data may be considered invalid if a zero-corrected span check in excess of +/- 10% of the span concentration (established by the previous multi-point calibration) is encountered and/or significant differences in the calibration factor occurs (greater than 10%).

SULPHUR DIOXIDE (SO₂)

- Operational time for the monitoring period was 99.9%, equivalent to one hour of downtime.
- The routine monthly calibration was performed on November 7.
- The automated daily zero-span check, scheduled for hour 13:00 on November 24, failed to execute. A valid zero-span check was manually completed at hour 14:00 of the same day. One hour of downtime was incurred due to the failed execution.

TOTAL REDUCED SULPHUR (TRS)

- Operational time for the monitoring period was 99.9%, equivalent to one hour of downtime.
- The routine monthly calibration was performed on November 7.
- The automated daily zero-span check, scheduled for hour 13:00 on November 24, failed to execute. A valid zero-span check was manually completed at hour 14:00 of the same day. One hour of downtime was incurred due to the failed execution.

TOTAL HYDROCARBONS (THC), METHANE (CH₄) and NON-METHANE HYDROCARBONS (NMHC)

- Operational time for the monitoring period was 91.0%, equivalent to sixty-five hours of downtime.
- The routine monthly calibration was performed on November 6.
- Beginning on November 18, frequent poor sample injections were recorded. This prompted a site visit on November 20 where a shut-down calibration was attempted prior to analyzer replacement. However, AMD requirements were not met when the analyzer was tested at As-Found High point. The analyzer (Thermo 55i, s/n: 1433563261) was removed for maintenance and a replacement (Thermo 55i, s/n: 1505664392) was installed. Column conditioning was run overnight and a successful installation calibration was completed on November 21. Data was invalidated back to the point of failed performance, determined as November 18 at hour 20:00. Sixty-four one hours of downtime were incurred due to this event.
- CH₄ minute concentrations recorded lower than 1.80 ppm due to poor sample injections that occurred before the determined point of failed performance, along with the corresponding THC and NMHC values, were excluded and the corresponding hourly average recalculated. Impacted minute data include the following:

Date	Time	Conc (ppm)
2018/11/18	14:41	1.71
2018/11/18	16:38	1.66
2018/11/18	16:39	1.66
2018/11/18	18:04	1.74
2018/11/18	18:20	1.73

- The automated daily zero-span check, scheduled for hour 13:00 on November 24, failed to execute. A valid zero-span check was manually completed at hour 14:00 of the same day. One hour of downtime was incurred due to the failed execution.
- The canister sampler is programmed to draw in a whole air sample when the 5-minute average concentration of NMHC is above 0.30 ppm. A representative sample of ambient air is collected over a one-hour period when the canister event is triggered. No canister event was recorded this month. A trigger test was performed during the routine monthly calibration on November 6 to assess the effectiveness of the canister system. No deficiencies were found.

WIND SPEED (WS) and WIND DIRECTION (WD)

- Operational time for the monitoring period was 100%.
- An anemometer sensor check was conducted on November 7. The result was satisfactory.
- Wind data is reported as vector wind speed and vector wind direction. Wind direction is defined as the direction from which the wind is blowing from and is measured in degrees from true north.

RELATIVE HUMIDITY (RH)

- Operational time for the monitoring period was 100%.
- A humidity sensor check was conducted on November 7. The result was satisfactory.

BAROMETRIC PRESSURE (BP)

- Operational time for the monitoring period was 100%.
- A pressure sensor check was conducted on November 7. The result was satisfactory.

AMBIENT TEMPERATURE (AmbTPX)

- Operational time for the monitoring period was 100%.
- A temperature sensor check was conducted on November 7. The result was satisfactory.

STATION TEMPERATURE (StnTPX)

- Operational time for the monitoring period was 100%.

2.0 Project Personnel

Karla Reesor was the contact for Peace River Area Monitoring Program Committee and the Maxxam field technicians were Limin Li and Christopher Wesson.

3.0 Plant Monthly Required AMD Summary

All data collected this month was compliant with the requirements outlined in the Air Monitoring Directive (Alberta Environment and Parks, 2016).

The operational time for all continuous ambient air analyzers, meteorological systems and data acquisition systems were above the 90% requirement.

All data collected this month were within the Alberta Ambient Air Quality Objectives and Guidelines (November, 2018).

4.0 Calculations and Results

All calculations and reporting of results follow the methods described in the AMD, 2016.

5.0 Methods and Procedures

The following methods and procedures were used to complete the monitoring program:

Maxxam AIR SOP-00001: Methane, Non-Methane Hydrocarbon Analyzer Monitoring

Maxxam AIR SOP-00013: RM Young Wind Monitor Calibration

Maxxam AIR SOP-00209: Ambient Sulphur Monitoring

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

Sulphur Dioxide - Thermo 43i UV Fluorescent Analyzer

Total Reduced Sulphur - Thermo 43i - TLE UV Fluorescent Analyzer

Methane, Non-Methane Hydrocarbon - Thermo 55i FID Analyzer

Wind System - RM Young Unit

Relative Humidity - Campbell Scientific Unit

Barometric Pressure - Met One Unit

Ambient Temperature - Campbell Scientific Unit

Datalogger - Envidas Ultimate

The following steps were used to complete the data verification and validation process:

Level 0 Preliminary Verification

Level 0 data are raw data obtained directly from the data acquisition system (DAS). Under the step of Level 0, these data undergo a certain amount of manual or automated screening and flagging. It included a) identification of periods of missing data; b) verification of time stamps against reference time; c) verification that instrument diagnostics/datalogger flags indicate normal operation; d) comparison of data to upper and lower limits; e) rate of change flagging indicating that data changed too rapidly or not at all; and f) verification that zero, span and multipoint performance checks are within specifications. This level of verification is performed on a daily basis.

Level 1 Primary Validation

Validation actions under the step of Level 1 include a) review of all screening flags assigned during preliminary verification; b) review of all supporting site information and documentation; c) review of operational acceptance limits for each parameter/analyzer; d) review of daily zero/span and monthly calibration results for all gaseous parameters; and e) application of any necessary adjustments to data (e.g. baseline adjustments, below zero adjustments). This level of validation is performed on a monthly basis.

Level 2 Final Validation

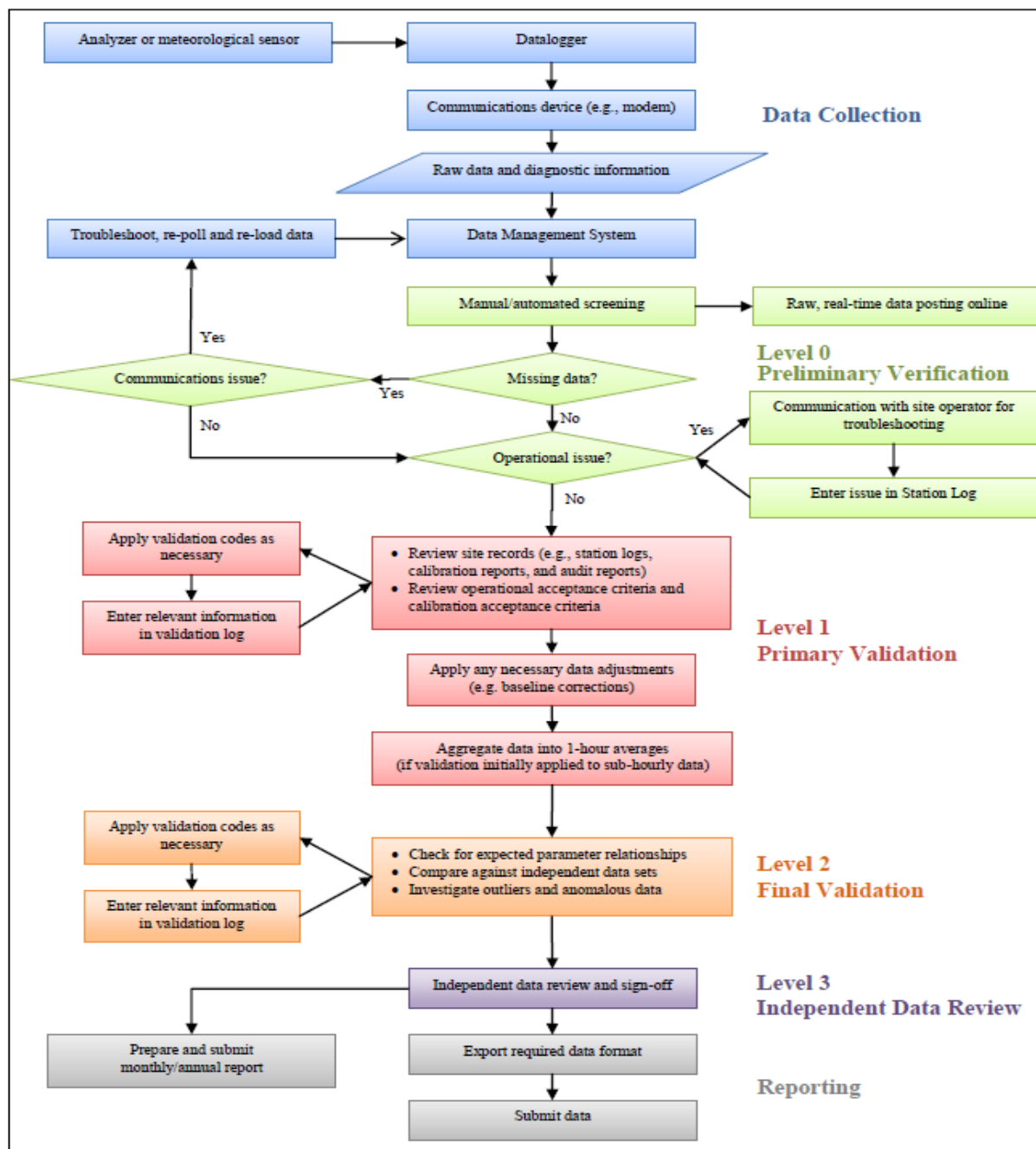
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

Level 3 Independent Data Review

Level 3 validation is the last step of data review, and it is completed by an individual that is independent of both field operations and primary data validation. A final independent QA review and endorsement is performed during this step before data is submitted to Alberta Environment.

Post-Final Validation

The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. Any data issues or patterns which were not clear on a monthly basis are highlighted during this step. This validation is performed on an annual basis.



Source: Air Monitoring Directive (December 2016), Chapter 6, Ambient Data Quality; Figure 1 Data Collection and Management Process Flow Chart

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)

	HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
	HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
DAY																													
1		0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	24
2		0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
3		0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
4		0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
5		0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
6		0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
7		0	0	0	0	0	0	S	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
8		0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
9		0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
10		0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
11		0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
12		0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
13		0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	1	0	24
14		S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	24
15		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	24
16		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	24
17		0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0	24
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	24
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	24
20		0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	S	1	0	0	0	0	0	0	1	0	24
21		0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	S	0	0	0	0	0	0	0	0	1	0	24
22		0	0	0	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0	24
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	24
24		0	0	0	0	0	0	0	0	0	0	0	0	0	X	S	0	0	0	0	0	0	0	0	0	0	0	0	23
25		0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
26		0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
27		0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
28		0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
29		0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
30		0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
HOURLY MAX		0	1	1	1	0	0	0	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	0	0			
HOURLY AVG		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

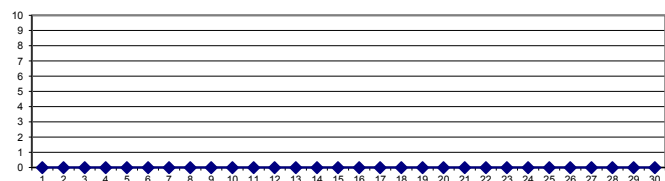
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	172	ppb	24-HR	48	ppb
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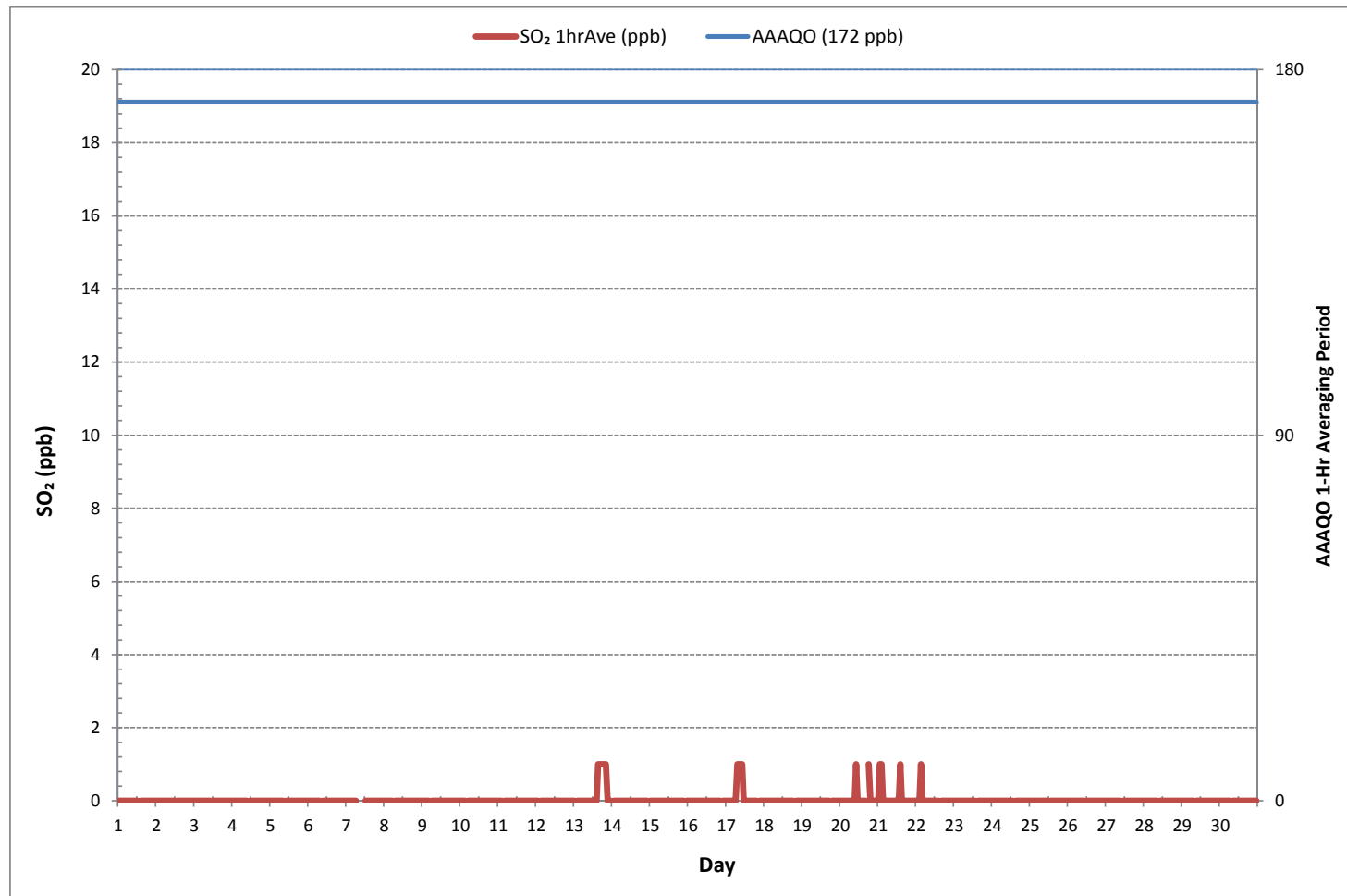
MONTHLY SUMMARY

ANALYSIS SUMMARY						
NUMBER OF 1-HR EXCEEDANCES:		0				
NUMBER OF 24-HR EXCEEDANCES:		0				
NUMBER OF NON-ZERO READINGS:		16				
MINIMUM 1-HR AVERAGE:		0	ppb	@ HOUR	0	ON DAY 1
MAXIMUM 1-HR AVERAGE:		1	ppb	@ HOUR	15	ON DAY 13
MAXIMUM 24-HR AVERAGE:		0	ppb			ON DAY 1
IZS CALIBRATION TIME:		31	hrs	OPERATIONAL TIME:		719 hrs
MONTHLY CALIBRATION TIME:		4	hrs	AMD OPERATION UPTIME:		99.9 %
STANDARD DEVIATION:		0		MONTHLY AVERAGE:		0 ppb

24 HR AVERAGES November 2018



SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)



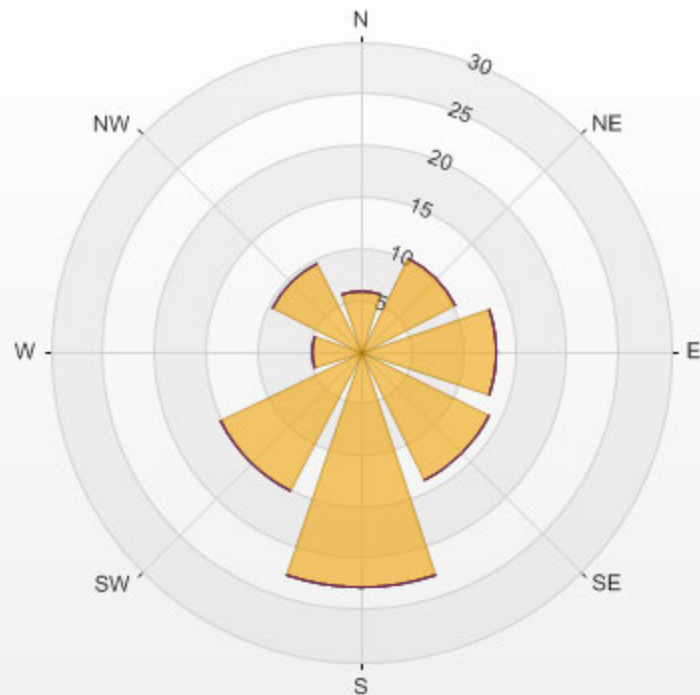
Wind: PRAMP_842
 Poll.: PRAMP_842-SO₂ [ppb]
 Monthly: 18/11
 Type: PollutionRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

Calm: 4.24%

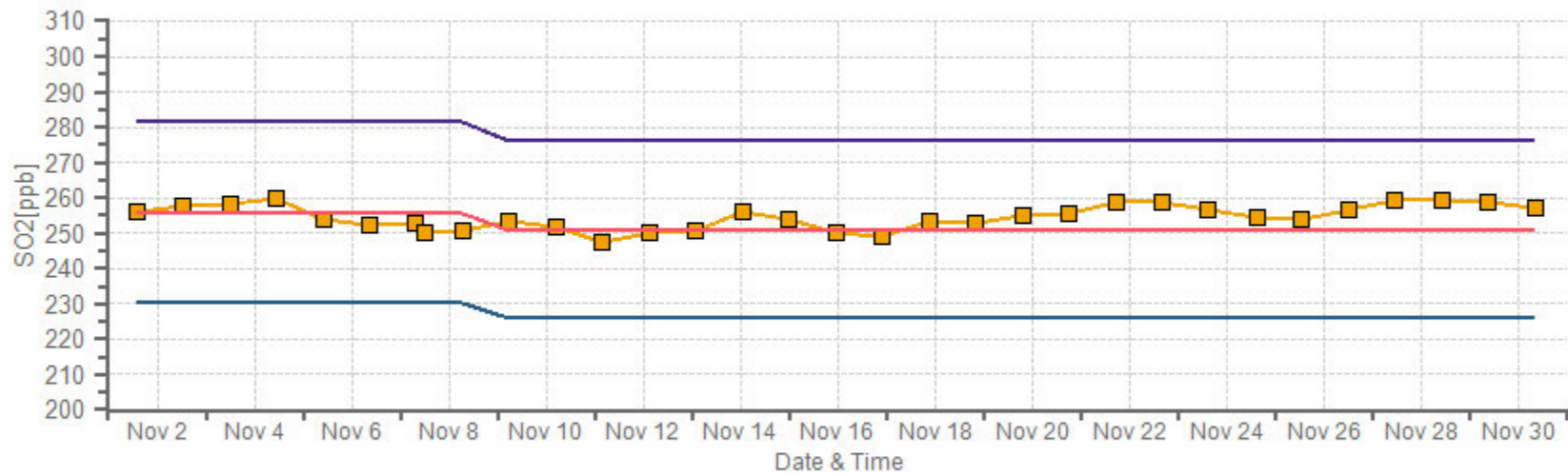
Calm Avg: 0.09 [ppb]

Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	6.0	0.0	0.0	0.0	0.0	6.0
NE	10.2	0.0	0.0	0.0	0.0	10.2
E	13.1	0.0	0.0	0.0	0.0	13.2
SE	14.0	0.0	0.0	0.0	0.0	14.0
S	22.8	0.0	0.0	0.0	0.0	22.8
SW	15.2	0.0	0.0	0.0	0.0	15.2
W	4.8	0.0	0.0	0.0	0.0	4.8
NW	9.5	0.0	0.0	0.0	0.0	9.5
Summary	95.8	0.0	0.0	0.0	0.0	95.8

PRAMP_842 Poll.: PRAMP_842-SO2[ppb] 2018/11/01 00:00 - 2018/11/30 23:00 Calm: 4.23% Calm Poll Avg: 0.09[ppb]



SO2[ppb] Calibration: PRAMP_842 Monthly: 18/11 Type: Span



Span Meas Span Ref Span Low Span High

TOTAL REDUCED SULPHUR

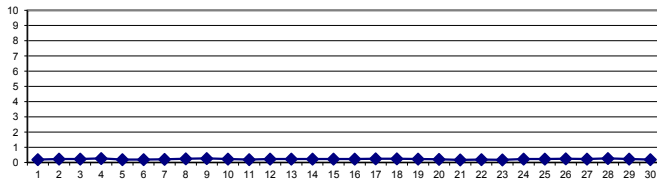
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	0.20	0.20	0.19	0.22	0.21	0.22	0.23	0.22	0.20	0.18	0.19	0.18	0.18	S	0.23	0.20	0.19	0.20	0.19	0.19	0.18	0.20	0.20	0.20	0.18	0.23	0.20	24
2	0.20	0.18	0.19	0.19	0.19	0.20	0.19	0.18	0.18	0.17	0.17	0.18	S	0.21	0.18	0.19	0.20	0.22	0.22	0.21	0.26	0.36	0.41	0.36	0.17	0.41	0.22	24
3	0.35	0.37	0.37	0.35	0.22	0.21	0.19	0.20	0.20	0.19	0.19	S	0.21	0.19	0.18	0.19	0.18	0.22	0.19	0.19	0.20	0.22	0.21	0.21	0.18	0.37	0.23	24
4	0.21	0.21	0.21	0.22	0.29	0.50	0.47	0.31	0.25	0.22	S	0.25	0.22	0.23	0.27	0.28	0.27	0.28	0.25	0.25	0.24	0.25	0.24	0.24	0.21	0.50	0.27	24
5	0.23	0.21	0.21	0.23	0.20	0.18	0.18	0.18	0.17	S	0.24	0.20	0.21	0.21	0.22	0.21	0.21	0.21	0.19	0.20	0.19	0.20	0.19	0.19	0.17	0.24	0.20	24
6	0.17	0.17	0.18	0.20	0.19	0.20	0.21	0.20	S	0.24	0.20	0.29	0.30	0.22	0.17	0.18	0.19	0.18	0.16	0.19	0.21	0.21	0.21	0.22	0.16	0.30	0.20	24
7	0.22	0.21	0.23	0.23	0.23	0.24	0.24	S	C	C	C	C	C	C	0.32	0.17	0.19	0.19	0.20	0.21	0.22	0.19	0.18	0.18	0.17	0.32	0.21	24
8	0.20	0.22	0.24	0.25	0.31	0.33	S	0.38	0.33	0.28	0.27	0.25	0.25	0.25	0.24	0.22	0.22	0.20	0.21	0.21	0.19	0.22	0.23	0.19	0.38	0.25	24	
9	0.23	0.23	0.23	0.23	0.23	S	0.25	0.23	0.22	0.22	0.24	0.23	0.24	0.22	0.30	0.38	0.24	0.26	0.28	0.35	0.41	0.37	0.30	0.25	0.22	0.41	0.27	24
10	0.24	0.24	0.23	0.24	S	0.25	0.24	0.24	0.26	0.26	0.23	0.28	0.25	0.30	0.25	0.23	0.21	0.21	0.18	0.17	0.17	0.15	0.16	0.16	0.15	0.30	0.22	24
11	0.17	0.19	0.17	S	0.20	0.19	0.19	0.20	0.21	0.21	0.22	0.21	0.20	0.20	0.22	0.22	0.21	0.20	0.19	0.23	0.23	0.23	0.21	0.20	0.17	0.23	0.20	24
12	0.24	0.23	S	0.27	0.23	0.24	0.24	0.25	0.27	0.25	0.25	0.23	0.23	0.23	0.24	0.24	0.23	0.23	0.21	0.21	0.21	0.21	0.21	0.20	0.20	0.27	0.23	24
13	0.21	S	0.23	0.21	0.20	0.24	0.23	0.21	0.21	0.20	0.20	0.21	0.19	0.19	0.22	0.22	0.24	0.24	0.23	0.23	0.24	0.24	0.21	0.18	0.18	0.24	0.22	24
14	S	0.24	0.21	0.21	0.21	0.21	0.21	0.22	0.21	0.21	0.21	0.20	0.26	0.24	0.26	0.25	0.24	0.22	0.24	0.23	0.24	0.23	0.24	S	0.20	0.26	0.23	24
15	0.27	0.25	0.26	0.27	0.26	0.27	0.27	0.22	0.22	0.22	0.21	0.19	0.19	0.20	0.20	0.18	0.19	0.20	0.19	0.21	0.26	0.26	S	0.29	0.18	0.29	0.23	24
16	0.23	0.21	0.20	0.21	0.20	0.18	0.20	0.20	0.19	0.21	0.20	0.23	0.25	0.23	0.20	0.22	0.27	0.28	0.28	0.25	0.25	S	0.28	0.24	0.18	0.28	0.23	24
17	0.23	0.22	0.24	0.24	0.27	0.24	0.24	0.25	0.26	0.25	0.25	0.24	0.28	0.24	0.23	0.22	0.21	0.21	0.22	0.20	S	0.23	0.22	0.22	0.20	0.28	0.24	24
18	0.21	0.21	0.20	0.20	0.21	0.19	0.24	0.28	0.26	0.25	0.25	0.26	0.26	0.27	0.28	0.27	0.27	0.27	0.26	S	0.26	0.23	0.22	0.22	0.19	0.28	0.24	24
19	0.22	0.23	0.24	0.26	0.27	0.26	0.24	0.24	0.26	0.25	0.24	0.23	0.20	0.20	0.20	0.21	0.24	0.25	S	0.25	0.21	0.20	0.19	0.20	0.19	0.27	0.23	24
20	0.19	0.19	0.21	0.20	0.20	0.19	0.21	0.21	0.22	0.22	0.22	0.21	0.20	0.20	0.20	0.21	0.21	S	0.25	0.22	0.21	0.20	0.20	0.18	0.18	0.25	0.21	24
21	0.18	0.20	0.20	0.19	0.21	0.18	0.17	0.18	0.17	0.16	0.17	0.18	0.16	0.15	0.16	0.16	S	0.18	0.16	0.15	0.19	0.18	0.16	0.17	0.15	0.21	0.17	24
22	0.18	0.22	0.22	0.25	0.25	0.21	0.19	0.18	0.19	0.19	0.18	0.18	0.19	0.20	0.19	S	0.25	0.18	0.18	0.20	0.16	0.17	0.16	0.15	0.15	0.25	0.19	24
23	0.21	0.21	0.21	0.18	0.20	0.18	0.20	0.16	0.18	0.18	0.17	0.17	0.16	0.15	S	0.17	0.17	0.17	0.17	0.17	0.19	0.18	0.18	0.19	0.15	0.21	0.18	24
24	0.18	0.19	0.18	0.19	0.20	0.20	0.20	0.20	0.21	0.22	0.21	0.24	0.24	X	S	0.29	0.27	0.27	0.32	0.29	0.27	0.23	0.20	0.20	0.18	0.32	0.23	23
25	0.21	0.30	0.32	0.33	0.30	0.26	0.25	0.23	0.23	0.20	0.19	0.20	S	0.23	0.20	0.19	0.20	0.18	0.19	0.21	0.19	0.21	0.20	0.21	0.18	0.33	0.23	24
26	0.21	0.21	0.20	0.20	0.22	0.21	0.21	0.21	0.23	0.21	0.22	S	0.26	0.25	0.25	0.25	0.27	0.26	0.26	0.26	0.25	0.26	0.25	0.25	0.20	0.27	0.24	24
27	0.23	0.23	0.22	0.23	0.23	0.23	0.21	0.22	0.23	0.23	S	0.24	0.23	0.22	0.22	0.22	0.23	0.26	0.24	0.26	0.23	0.24	0.22	0.21	0.21	0.26	0.23	24
28	0.20	0.24	0.31	0.31	0.31	0.30	0.33	0.36	0.35	S	0.30	0.27	0.27	0.26	0.24	0.25	0.23	0.23	0.23	0.22	0.22	0.23	0.23	0.21	0.20	0.36	0.27	24
29	0.21	0.19	0.32	0.20	0.20	0.22	0.21	0.21	S	0.23	0.22	0.24	0.26	0.24	0.22	0.21	0.20	0.20	0.19	0.30	0.21	0.19	0.19	0.18	0.18	0.32	0.22	24
30	0.17	0.17	0.18	0.19	0.20	0.19	0.19	S	0.23	0.20	0.21	0.21	0.21	0.20	0.20	0.20	0.21	0.20	0.20	0.20	0.19	0.19	0.20	0.21	0.17	0.23	0.20	24
HOURLY MAX	0.35	0.37	0.37	0.35	0.31	0.50	0.47	0.38	0.35	0.28	0.30	0.29	0.30	0.32	0.30	0.38	0.27	0.28	0.32	0.35	0.41	0.37	0.41	0.36				
HOURLY AVG	0.21	0.22	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.22	0.22	0.22	0.23	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.21				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

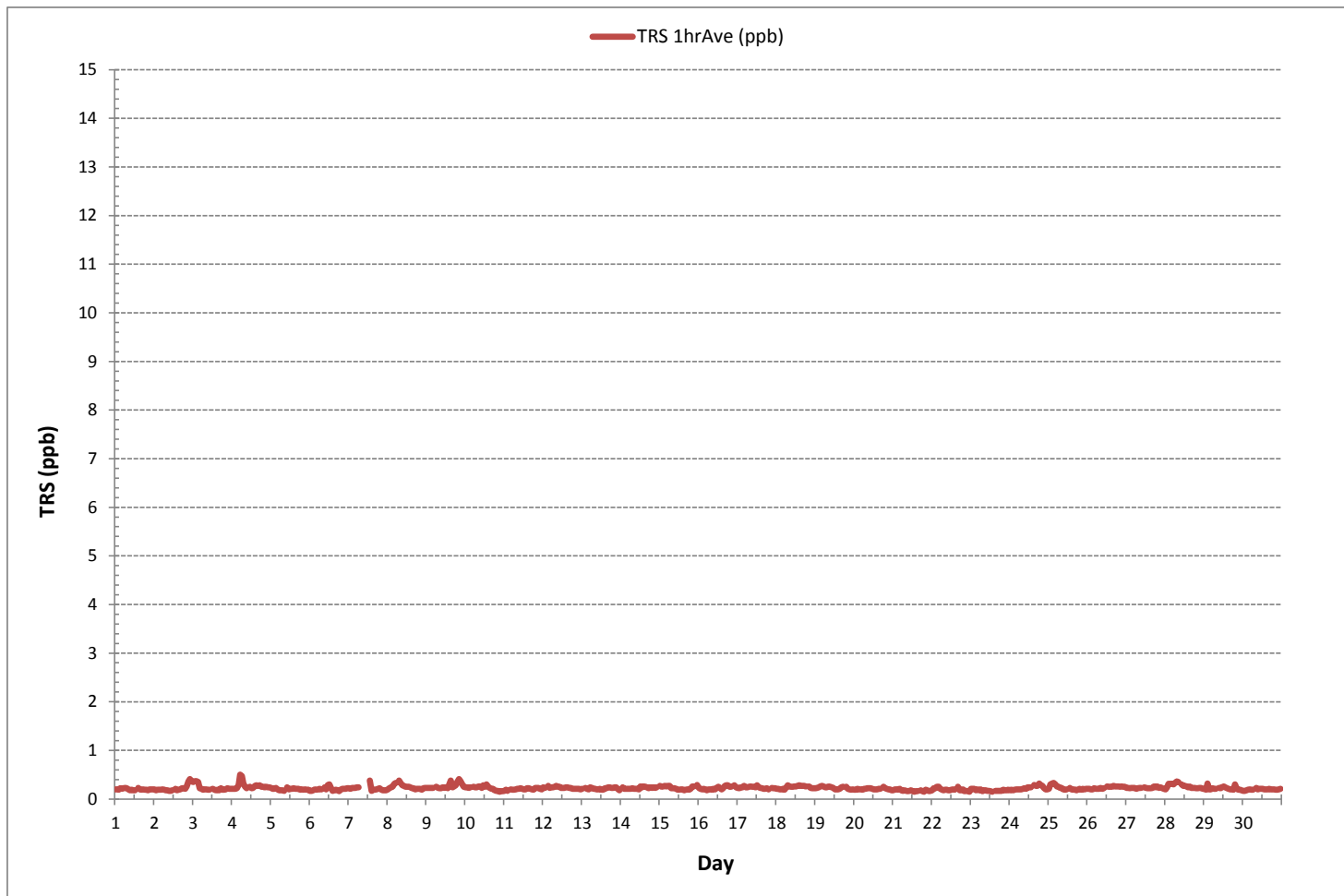
24 HR AVERAGES November 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	683				
MINIMUM 1-HR AVERAGE:	0.15	ppb	@ HOUR	21	ON DAY
MAXIMUM 1-HR AVERAGE:	0.50	ppb	@ HOUR	5	ON DAY
MAXIMUM 24-HR AVERAGE:	0.27	ppb			ON DAY
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	719	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	0.04		MONTHLY AVERAGE:	0.22	ppb

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)



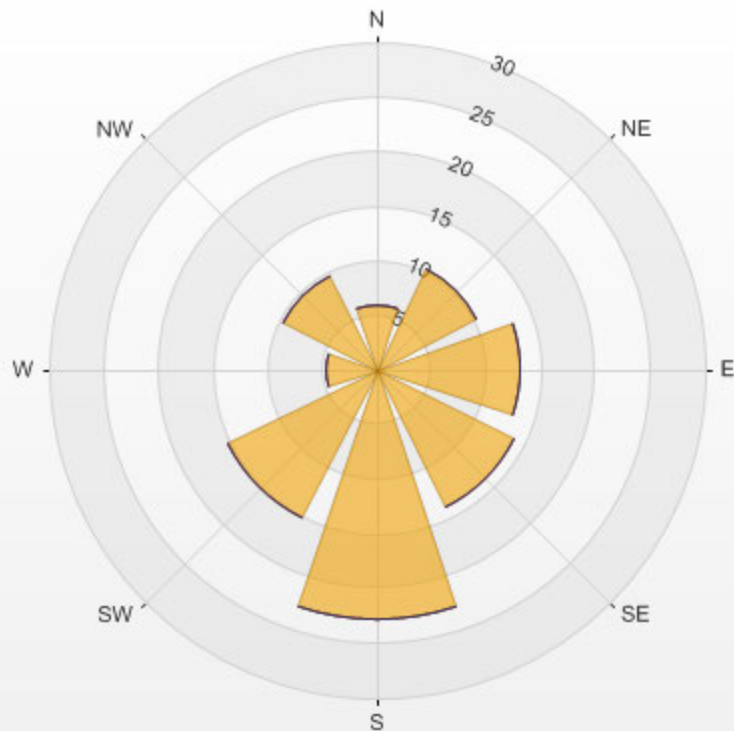
Wind: PRAMP_842
Poll.: PRAMP_842-TRS [ppb]
Monthly: 18/11
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 4.25%

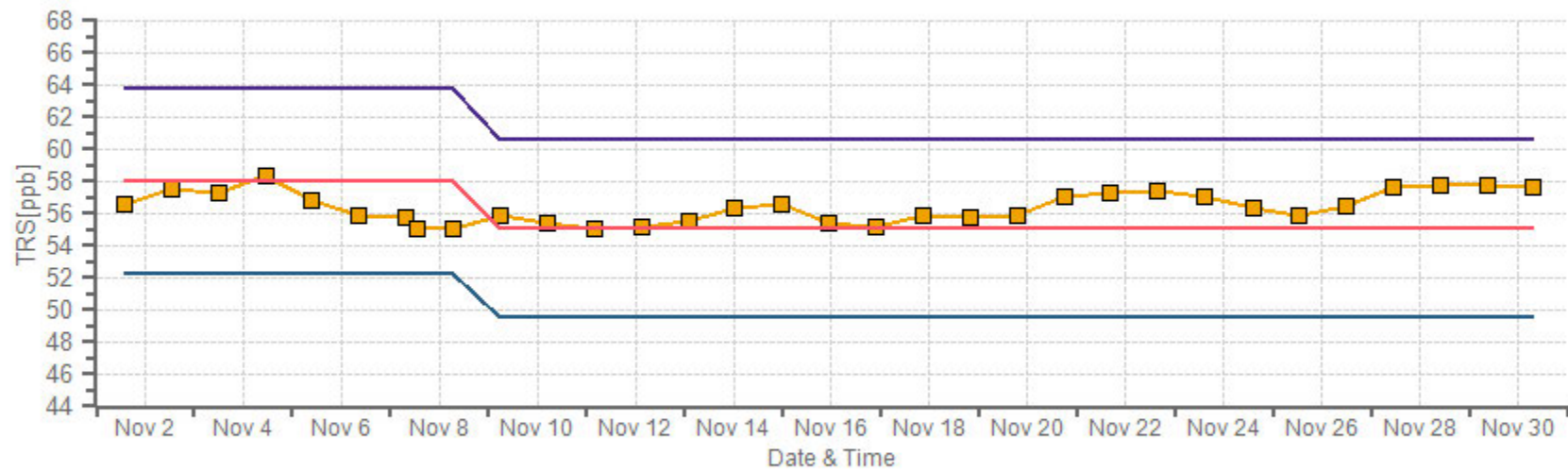
Calm Avg: 0.21 [ppb]

Direction	0-1	1-3	3-10	>10.0	Total
N	6.0	0.0	0.0	0.0	6.0
NE	10.3	0.0	0.0	0.0	10.3
E	13.2	0.0	0.0	0.0	13.2
SE	14.1	0.0	0.0	0.0	14.1
S	22.8	0.0	0.0	0.0	22.8
SW	15.2	0.0	0.0	0.0	15.2
W	4.7	0.0	0.0	0.0	4.7
NW	9.5	0.0	0.0	0.0	9.5
Summary	95.8	0.0	0.0	0.0	95.8

PRAMP_842 Poll.: PRAMP_842-TRS[ppb] 2018/11/01 00:00 - 2018/11/30 23:00 Calm: 4.25% Calm Poll Avg: 0.21[ppb]



TRS[ppb] Calibration: PRAMP_842 Monthly: 18/11 Type: Span



■ Span Meas
 — Span Ref
 — Span Low
 — Span High

TOTAL HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - November 2018

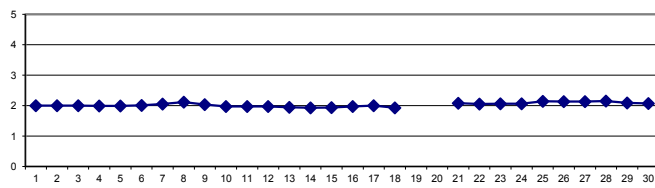
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	2.01	2.01	2.01	2.01	2.00	2.00	2.00	2.01	2.01	2.01	2.00	2.00	2.01	S	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	1.99	2.01	2.00	24	
2	1.99	1.98	1.98	1.99	1.99	2.00	1.99	1.99	1.99	1.98	1.98	2.00	S	2.01	2.00	2.00	2.00	2.01	2.02	2.01	2.00	2.00	2.01	2.02	1.98	2.02	2.00	24	
3	2.01	2.01	2.04	2.02	2.00	2.00	2.00	2.00	2.00	2.00	2.00	S	1.99	1.99	2.00	2.00	1.99	1.99	2.00	2.00	2.01	2.01	2.00	2.00	1.99	2.04	2.00	24	
4	2.00	2.00	2.00	2.00	2.00	2.01	2.00	2.00	1.99	1.99	S	1.98	1.98	1.98	1.98	1.98	1.99	1.98	1.98	1.98	1.99	1.99	1.99	1.99	1.98	2.01	1.99	24	
5	1.99	1.98	1.99	1.99	1.98	1.98	1.99	1.99	1.99	S	2.00	1.99	1.99	2.00	2.00	2.00	1.99	1.99	2.00	2.00	2.00	2.00	2.00	1.99	1.98	2.00	1.99	24	
6	1.99	2.00	2.01	2.00	2.00	2.00	2.00	2.01	S	2.02	2.02	2.03	2.01	2.01	2.01	2.01	C	C	C	C	2.00	2.01	2.02	2.02	1.99	2.03	2.01	24	
7	2.03	2.03	2.03	2.04	2.04	2.04	2.05	S	2.06	2.05	2.04	2.03	2.02	2.04	2.03	2.06	2.07	2.08	2.08	2.08	2.08	2.07	2.06	2.06	2.02	2.08	2.05	24	
8	2.07	2.10	2.13	2.15	2.29	2.36	S	2.46	2.34	2.17	2.09	2.09	2.05	2.07	2.04	2.03	2.06	2.03	2.03	2.03	2.02	2.02	2.03	2.03	2.02	2.46	2.12	24	
9	2.04	2.05	2.05	2.04	2.04	S	2.04	2.03	2.03	2.02	2.04	2.07	2.06	2.02	2.11	2.13	2.04	2.06	2.04	1.99	1.99	1.99	1.98	1.97	1.97	2.13	2.04	24	
10	1.97	1.97	1.98	1.98	S	1.99	1.99	1.99	1.99	1.99	1.98	1.97	1.96	1.97	1.97	1.96	1.95	1.96	1.96	1.97	1.98	1.97	1.97	1.98	1.95	1.99	1.97	24	
11	1.98	1.97	1.97	S	1.98	1.98	1.98	1.97	1.98	1.98	1.98	1.98	1.97	1.96	1.96	1.96	1.95	1.96	1.97	1.99	1.98	1.97	1.96	1.96	1.95	1.99	1.97	24	
12	1.96	1.97	S	1.98	1.98	1.99	1.99	1.99	1.99	1.98	1.97	1.97	1.95	1.95	1.97	1.97	1.97	1.96	1.95	1.95	1.96	1.96	1.95	1.94	1.94	1.99	1.97	24	
13	1.95	S	1.95	1.94	1.93	1.96	1.97	1.96	1.95	1.94	1.94	1.95	1.93	1.94	1.96	1.97	1.97	1.98	1.96	1.95	1.96	1.95	1.96	1.92	1.90	1.90	1.98	1.95	24
14	S	1.89	1.89	1.89	1.90	1.91	1.90	1.91	1.92	1.93	1.93	1.92	1.92	1.93	1.95	1.95	1.96	1.95	1.96	1.96	1.96	1.96	1.96	S	1.89	1.96	1.93	24	
15	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.95	1.96	S	1.96	1.93	1.96	1.94	24	
16	1.95	1.95	1.95	1.96	1.96	1.97	1.97	1.97	1.96	1.95	1.96	1.96	1.97	1.96	1.96	1.97	1.98	1.98	1.98	1.98	1.98	1.98	S	1.98	1.98	1.95	1.98	1.97	24
17	1.98	1.98	2.00	2.02	2.03	2.04	2.04	2.04	2.04	2.04	2.03	2.02	2.01	2.00	2.00	1.99	1.98	1.98	1.98	1.96	S	1.95	1.94	1.94	1.94	2.04	2.00	24	
18	1.94	1.94	1.93	1.92	1.91	1.92	1.93	1.95	1.94	1.94	1.93	1.93	1.93	1.93	1.92	1.92	1.91	1.91	1.91	S	X	X	X	X	1.91	1.95	1.93	20	
19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0	
21	Y	Y	Y	Y	Y	Y	Y	Y	Y	C1	C1	C1	2.03	2.03	2.03	2.04	S	2.05	2.07	2.08	2.17	2.15	2.13	2.10	2.03	2.17	2.08	12	
22	2.11	2.14	2.16	2.14	2.10	2.06	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.03	2.02	S	2.01	2.03	2.02	2.02	2.05	2.06	2.07	2.07	2.01	2.16	2.05	24	
23	2.08	2.08	2.05	2.04	2.05	2.05	2.06	2.06	2.06	2.06	2.05	2.06	2.06	2.06	S	2.07	2.06	2.07	2.06	2.06	2.05	2.05	2.06	2.05	2.04	2.08	2.06	24	
24	2.05	2.06	2.05	2.05	2.06	2.07	2.06	2.05	2.05	2.05	2.05	2.06	2.08	X	S	2.08	2.08	2.08	2.08	2.08	2.07	2.07	2.07	2.07	2.05	2.08	2.06	23	
25	2.11	2.24	2.32	2.36	2.31	2.20	2.19	2.17	2.15	2.13	2.12	2.11	S	2.08	2.07	2.07	2.06	2.07	2.08	2.08	2.09	2.10	2.10	2.10	2.06	2.36	2.14	24	
26	2.11	2.13	2.13	2.14	2.16	2.13	2.11	2.09	2.10	2.10	2.11	S	2.12	2.12	2.14	2.14	2.15	2.13	2.14	2.14	2.15	2.15	2.17	2.14	2.09	2.17	2.13	24	
27	2.12	2.12	2.11	2.11	2.12	2.10	2.11	2.11	2.20	2.31	S	2.14	2.15	2.12	2.13	2.13	2.12	2.12	2.11	2.10	2.10	2.10	2.11	2.11	2.10	2.31	2.13	24	
28	2.11	2.12	2.15	2.16	2.16	2.18	2.21	2.33	2.50	S	2.25	2.20	2.17	2.15	2.13	2.12	2.12	2.10	2.07	2.06	2.06	2.05	2.09	2.04	2.04	2.50	2.15	24	
29	2.06	2.06	2.13	2.13	2.12	2.12	2.12	2.11	S	2.11	2.11	2.12	2.12	2.11	2.08	2.05	2.01	2.00	1.99	2.07	2.08	2.08	2.08	2.09	1.99	2.13	2.09	24	
30	2.09	2.09	2.10	2.10	2.09	2.08	2.07	S	2.07	2.06	2.07	2.07	2.06	2.06	2.06	2.06	2.06	2.05	2.05	2.05	2.05	2.05	2.06	2.06	2.05	2.10	2.07	24	
HOURLY MAX	2.12	2.24	2.32	2.36	2.31	2.36	2.21	2.46	2.50	2.31	2.25	2.20	2.17	2.15	2.14	2.14	2.15	2.13	2.14	2.14	2.17	2.15	2.17	2.14					
HOURLY AVG	2.03	2.03	2.04	2.04	2.04	2.04	2.03	2.05	2.05	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.02				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

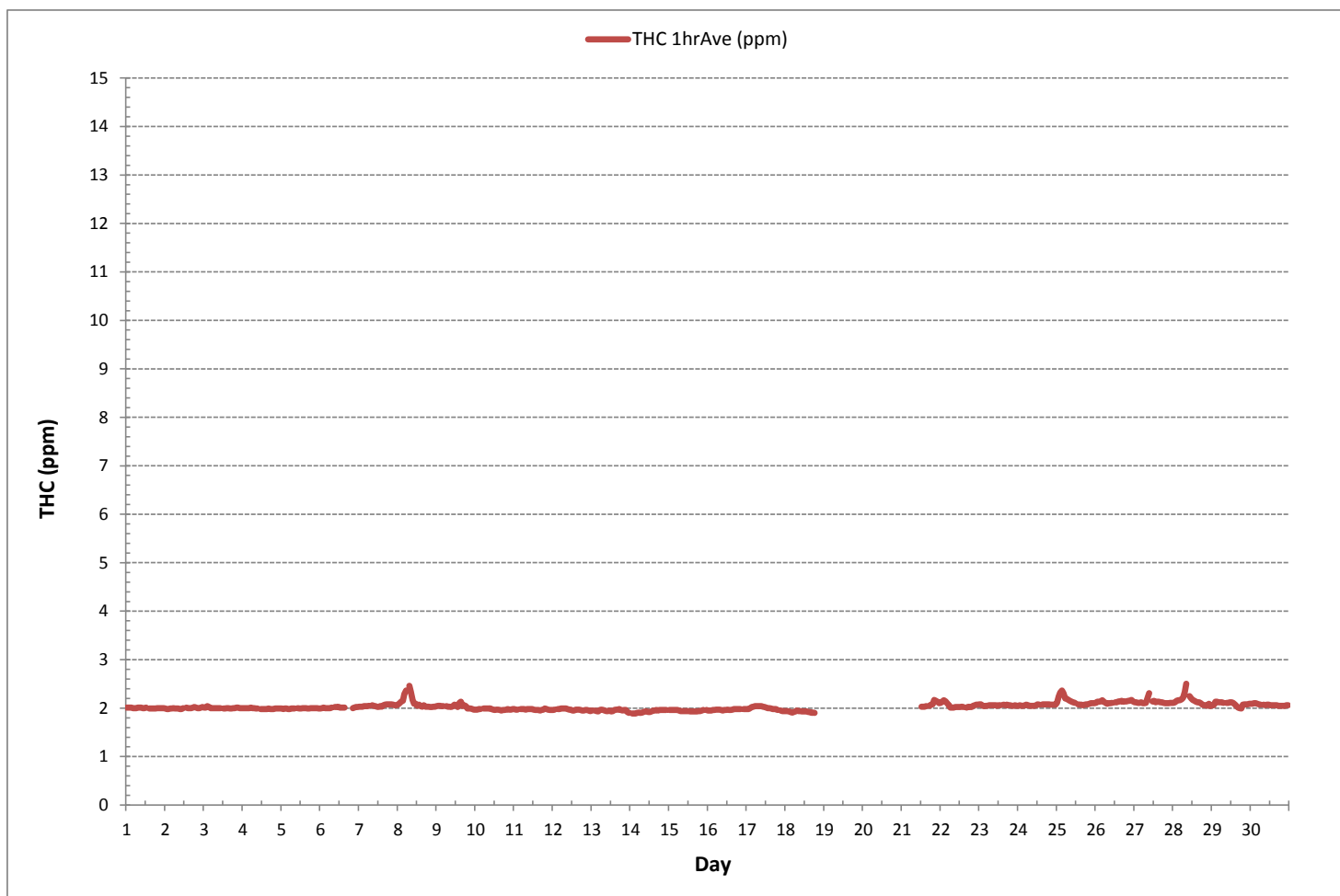
24 HR AVERAGES November 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	622				
MINIMUM 1-HR AVERAGE:	1.89	ppm	@ HOUR	1	ON DAY 14
MAXIMUM 1-HR AVERAGE:	2.50	ppm	@ HOUR	8	ON DAY 28
MAXIMUM 24-HR AVERAGE:	2.15	ppm			ON DAY 28
IZS CALIBRATION TIME:	29	hrs	OPERATIONAL TIME:	655	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	91.0	%
STANDARD DEVIATION:	0.08		MONTHLY AVERAGE:	2.03	ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)



Wind: PRAMP_842
Poll.: PRAMP_842-THC55 [ppm]
Monthly: 18/11
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 4.66%

Calm Avg: 2.01 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	5.8	0.8	0.0	0.0	0.0	6.6
NE	4.7	6.6	0.0	0.0	0.0	11.3
E	5.1	9.2	0.0	0.0	0.0	14.3
SE	3.5	8.5	0.0	0.0	0.0	12.1
S	10.5	9.2	0.0	0.0	0.0	19.6
SW	6.6	9.2	0.0	0.0	0.0	15.8
W	1.5	3.9	0.0	0.0	0.0	5.3
NW	4.8	5.6	0.0	0.0	0.0	10.5
Summary	42.4	52.9	0.0	0.0	0.0	95.3

% Icon Classes (ppm)

42 0-2

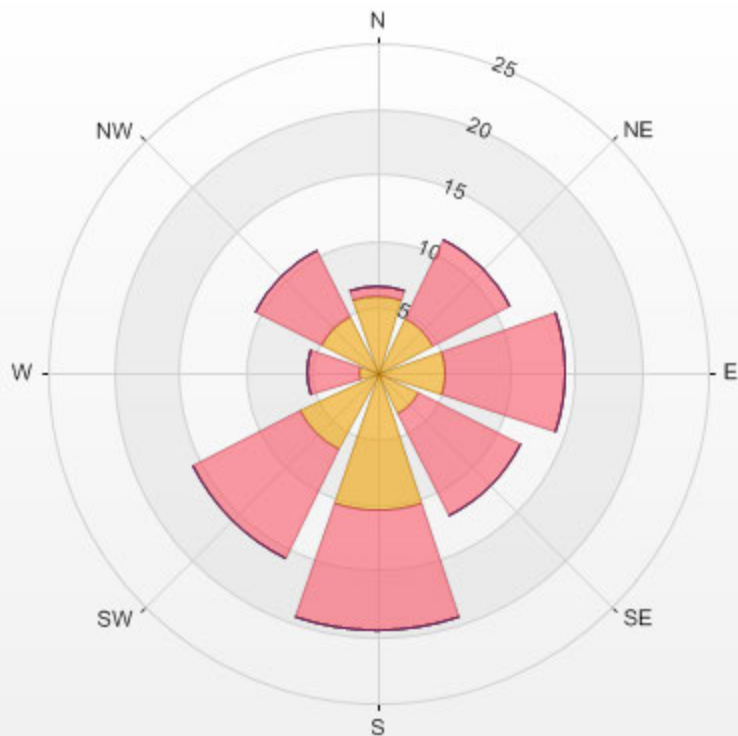
53 2-3

0 3-5

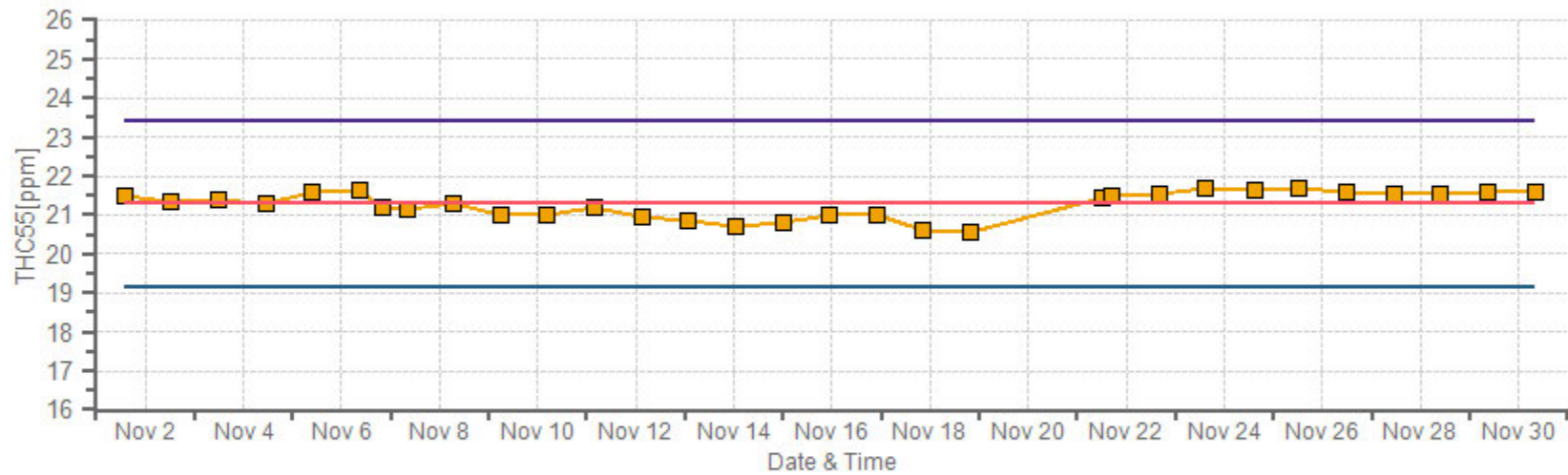
0 5-10

0 >10.0

PRAMP_842 Poll.: PRAMP_842-THC55[ppm] 2018/11/01 00:00 - 2018/11/30 23:00 Calm: 4.66% Calm Poll Avg: 2.01[ppm]



THC55[ppm] Calibration: PRAMP_842 Monthly: 18/11 Type: Span



Span Meas Span Ref Span Low Span High

METHANE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - November 2018

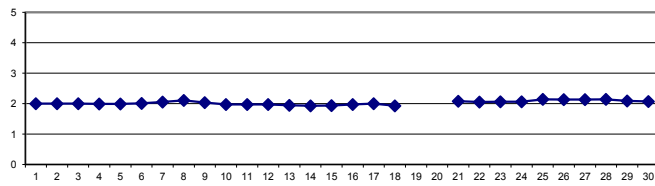
METHANE Hourly Averages (CH₄ ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
DAY 1	2.01	2.01	2.01	2.01	2.00	2.00	2.00	2.01	2.01	2.01	2.00	2.00	2.01	S	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	1.99	2.01	2.00	24
2	1.99	1.98	1.98	1.99	1.99	2.00	1.99	1.99	1.99	1.98	1.98	2.00	S	2.01	2.00	2.00	2.00	2.01	2.02	2.01	2.00	2.00	2.01	2.02	1.98	2.02	2.00	24
3	2.01	2.01	2.04	2.02	2.00	2.00	2.00	2.00	2.00	2.00	2.00	S	1.99	1.99	2.00	2.00	1.99	1.99	2.00	2.00	2.01	2.01	2.00	2.00	1.99	2.04	2.00	24
4	2.00	2.00	2.00	2.00	2.00	2.01	2.00	2.00	1.99	1.99	S	1.98	1.98	1.98	1.98	1.98	1.99	1.98	1.98	1.98	1.99	1.99	1.99	1.99	1.98	2.01	1.99	24
5	1.99	1.98	1.99	1.99	1.98	1.98	1.99	1.99	1.99	S	2.00	1.99	1.99	2.00	2.00	2.00	1.99	1.99	2.00	2.00	2.00	2.00	2.00	1.99	1.98	2.00	1.99	24
6	1.99	2.00	2.01	2.00	2.00	2.00	2.00	2.01	S	2.02	2.02	2.03	2.01	2.01	2.01	2.01	C	C	C	C	2.00	2.01	2.02	2.02	1.99	2.03	2.01	24
7	2.03	2.03	2.03	2.04	2.04	2.04	2.05	S	2.06	2.05	2.04	2.03	2.02	2.04	2.03	2.06	2.07	2.08	2.08	2.08	2.08	2.07	2.06	2.06	2.02	2.08	2.05	24
8	2.07	2.10	2.13	2.15	2.29	2.36	S	2.37	2.33	2.17	2.09	2.09	2.05	2.07	2.04	2.03	2.06	2.03	2.03	2.03	2.02	2.02	2.03	2.03	2.02	2.37	2.11	24
9	2.04	2.05	2.05	2.04	2.04	S	2.04	2.03	2.03	2.02	2.04	2.07	2.06	2.02	2.11	2.13	2.04	2.06	2.04	1.99	1.99	1.99	1.98	1.97	1.97	2.13	2.04	24
10	1.97	1.97	1.98	1.98	S	1.99	1.99	1.99	1.99	1.99	1.98	1.97	1.96	1.97	1.97	1.96	1.95	1.96	1.96	1.97	1.98	1.97	1.97	1.98	1.95	1.99	1.97	24
11	1.98	1.97	1.97	S	1.98	1.98	1.98	1.97	1.98	1.98	1.98	1.98	1.97	1.96	1.96	1.96	1.95	1.96	1.97	1.99	1.98	1.97	1.96	1.96	1.95	1.99	1.97	24
12	1.96	1.97	S	1.98	1.98	1.99	1.99	1.99	1.99	1.98	1.97	1.97	1.95	1.95	1.97	1.97	1.96	1.95	1.96	1.95	1.96	1.96	1.95	1.94	1.94	1.99	1.97	24
13	1.95	S	1.95	1.94	1.93	1.96	1.97	1.96	1.95	1.94	1.94	1.95	1.93	1.94	1.96	1.97	1.97	1.98	1.96	1.95	1.96	1.96	1.92	1.90	1.90	1.98	1.95	24
14	S	1.89	1.89	1.89	1.90	1.91	1.90	1.91	1.92	1.93	1.93	1.92	1.92	1.93	1.95	1.95	1.96	1.95	1.96	1.96	1.96	1.96	S	1.89	1.96	1.96	1.93	24
15	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.95	1.96	S	1.96	1.96	1.96	1.94	24
16	1.95	1.95	1.95	1.96	1.96	1.97	1.97	1.97	1.96	1.95	1.96	1.96	1.97	1.96	1.96	1.97	1.98	1.98	1.98	1.98	1.98	S	1.98	1.98	1.95	1.98	1.97	24
17	1.98	1.98	2.00	2.02	2.03	2.04	2.04	2.04	2.04	2.04	2.03	2.02	2.01	2.00	2.00	1.99	1.98	1.98	1.98	1.96	S	1.95	1.94	1.94	1.94	2.04	2.00	24
18	1.94	1.94	1.93	1.92	1.91	1.92	1.93	1.95	1.94	1.94	1.93	1.93	1.93	1.92	1.92	1.91	1.91	1.91	S	X	X	X	X	X	1.91	1.95	1.93	20
19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
21	Y	Y	Y	Y	Y	Y	Y	Y	Y	C1	C1	C1	2.03	2.03	2.03	2.04	S	2.05	2.07	2.08	2.15	2.14	2.13	2.10	2.03	2.15	2.08	12
22	2.11	2.14	2.16	2.14	2.10	2.06	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.03	2.02	S	2.01	2.03	2.02	2.02	2.05	2.06	2.07	2.07	2.01	2.16	2.05	24
23	2.08	2.08	2.05	2.04	2.05	2.05	2.06	2.06	2.06	2.06	2.05	2.06	2.06	2.06	S	2.07	2.06	2.07	2.06	2.06	2.05	2.05	2.06	2.05	2.04	2.08	2.06	24
24	2.05	2.06	2.05	2.05	2.06	2.07	2.06	2.05	2.05	2.05	2.06	2.08	X	S	2.08	2.08	2.08	2.08	2.08	2.08	2.07	2.07	2.07	2.07	2.05	2.08	2.06	23
25	2.11	2.24	2.32	2.36	2.31	2.20	2.19	2.17	2.15	2.13	2.12	2.11	S	2.08	2.07	2.07	2.06	2.07	2.08	2.08	2.09	2.10	2.10	2.10	2.06	2.36	2.14	24
26	2.11	2.13	2.13	2.14	2.16	2.13	2.11	2.09	2.10	2.10	2.11	S	2.12	2.12	2.14	2.14	2.15	2.13	2.14	2.14	2.15	2.15	2.17	2.14	2.09	2.17	2.13	24
27	2.12	2.12	2.11	2.11	2.12	2.10	2.10	2.11	2.20	2.31	S	2.14	2.15	2.12	2.13	2.13	2.12	2.12	2.11	2.10	2.10	2.11	2.11	2.11	2.10	2.31	2.13	24
28	2.11	2.12	2.15	2.16	2.16	2.17	2.21	2.29	2.33	S	2.23	2.19	2.17	2.15	2.13	2.12	2.12	2.10	2.07	2.06	2.06	2.05	2.09	2.04	2.04	2.33	2.14	24
29	2.06	2.06	2.13	2.13	2.12	2.12	2.12	2.11	S	2.11	2.11	2.12	2.12	2.11	2.08	2.05	2.01	2.00	1.99	2.07	2.08	2.08	2.08	2.09	1.99	2.13	2.09	24
30	2.09	2.09	2.10	2.10	2.09	2.08	2.07	S	2.07	2.06	2.07	2.07	2.06	2.06	2.06	2.06	2.06	2.05	2.05	2.05	2.05	2.05	2.06	2.06	2.05	2.10	2.07	24
HOURLY MAX	2.12	2.24	2.32	2.36	2.31	2.36	2.21	2.37	2.33	2.31	2.23	2.19	2.17	2.15	2.14	2.14	2.15	2.13	2.14	2.14	2.15	2.15	2.17	2.14				
HOURLY AVG	2.03	2.03	2.04	2.04	2.04	2.04	2.03	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.02			

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

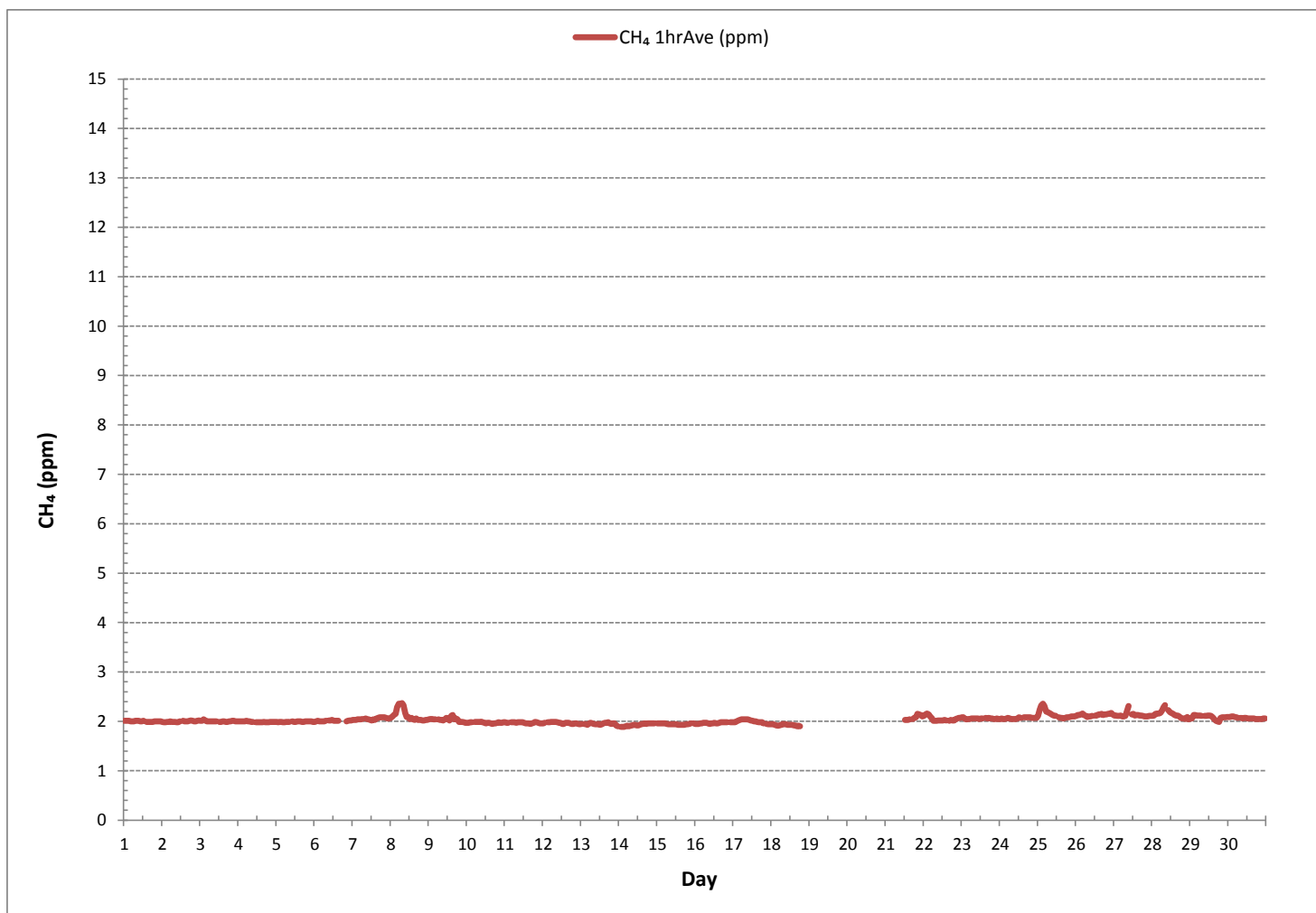
24 HR AVERAGES November 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	622				
MINIMUM 1-HR AVERAGE:	1.89	ppm	@ HOUR	1	ON DAY 14
MAXIMUM 1-HR AVERAGE:	2.37	ppm	@ HOUR	7	ON DAY 8
MAXIMUM 24-HR AVERAGE:	2.14	ppm			ON DAY 25
IZS CALIBRATION TIME:	29	hrs	OPERATIONAL TIME:	655	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	91.0	%
STANDARD DEVIATION:	0.07		MONTHLY AVERAGE:	2.03	ppm

METHANE Hourly Averages (CH₄ ppm)



Wind: PRAMP_842
Poll.: PRAMP_842-CH₄ [ppm]
Monthly: 18/11
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

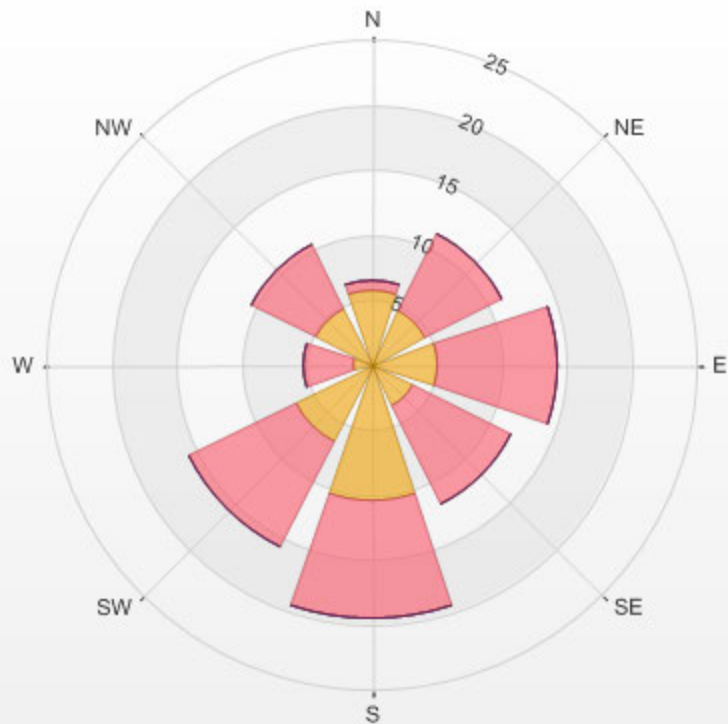
Calm: 4.66%

Calm Avg: 2.01 [ppm]

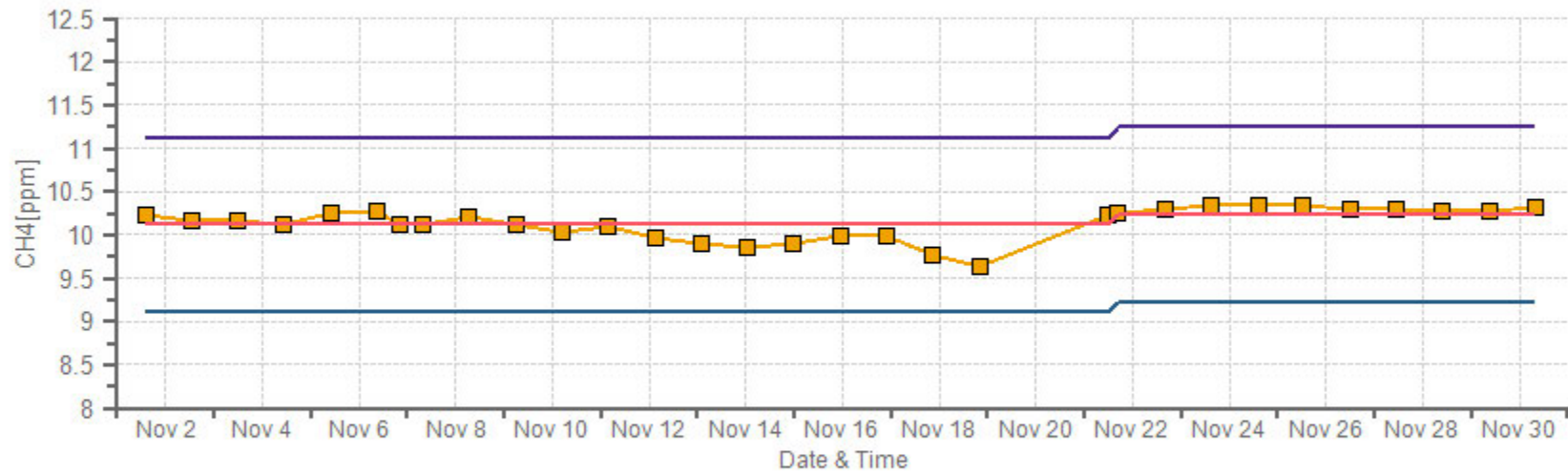
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	5.8	0.8	0.0	0.0	0.0	6.6
NE	4.7	6.6	0.0	0.0	0.0	11.3
E	5.1	9.2	0.0	0.0	0.0	14.3
SE	3.5	8.5	0.0	0.0	0.0	12.1
S	10.5	9.2	0.0	0.0	0.0	19.6
SW	6.6	9.2	0.0	0.0	0.0	15.8
W	1.5	3.9	0.0	0.0	0.0	5.3
NW	4.8	5.6	0.0	0.0	0.0	10.5
Summary	42.4	52.9	0.0	0.0	0.0	95.3

% Icon	Classes (ppm)	42	0-2	53	2-3	0	3-5	0	5-10	0	>10.0

PRAMP_842 Poll.: PRAMP_842-CH4[ppm] 2018/11/01 00:00 - 2018/11/30 23:00 Calm: 4.66% Calm Poll Avg: 2.01[ppm]



CH4[ppm] Calibration: PRAMP_842 Monthly: 18/11 Type: Span



Span Meas Span Ref Span Low Span High

NON-METHANE HYDROCARBON

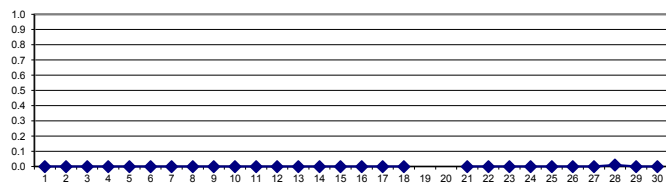
NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

	HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
	HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																														
1		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
3		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
4		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
5		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
7		0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
8		0.00	0.00	0.00	0.00	0.00	0.00	\$	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	24
9		0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
10		0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
11		0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
12		0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
13		0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
14		\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	24	
15		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	24	
16		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	24	
17		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
18		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	X	X	X	X	0.00	0.00	0.00	20	
19		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
20		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0	
21		Y	Y	Y	Y	Y	Y	Y	Y	Y	C1	C1	C1	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.00	12	
22		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
23		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
24		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23	
25		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
26		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
27		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
28		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.16	\$	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.01	24	
29		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
30		0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00</										

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

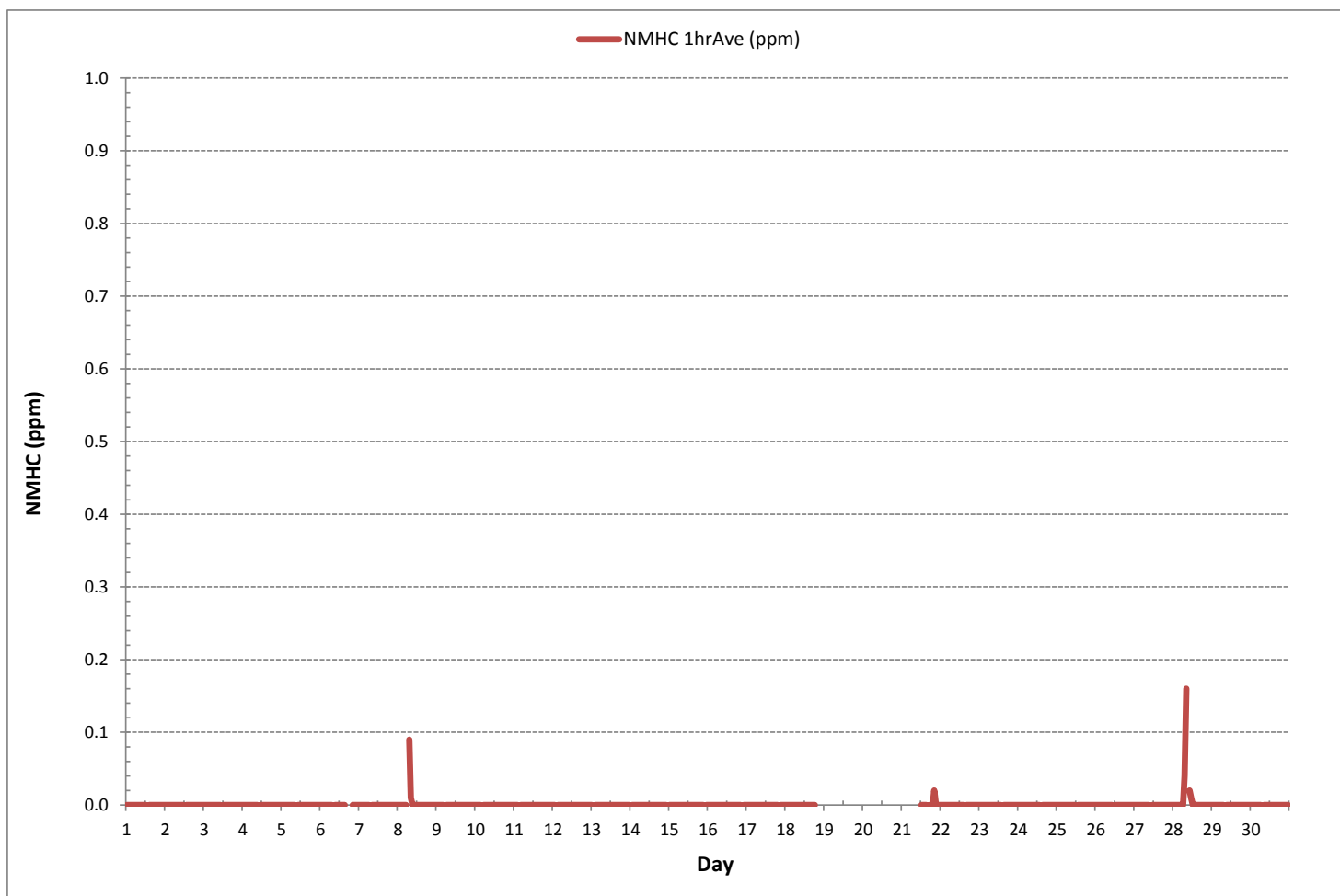
24 HR AVERAGES November 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	7				
MINIMUM 1-HR AVERAGE	0.00	ppm	@ HOUR	0	ON DAY 1
MAXIMUM 1-HR AVERAGE:	0.16	ppm	@ HOUR	8	ON DAY 28
MAXIMUM 24-HR AVERAGE:	0.01	ppm			ON DAY 28
IZS CALIBRATION TIME:	29	hrs	OPERATIONAL TIME:	655	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	91.0	%
STANDARD DEVIATION:	0.01		MONTHLY AVERAGE:	0.00	ppm

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)



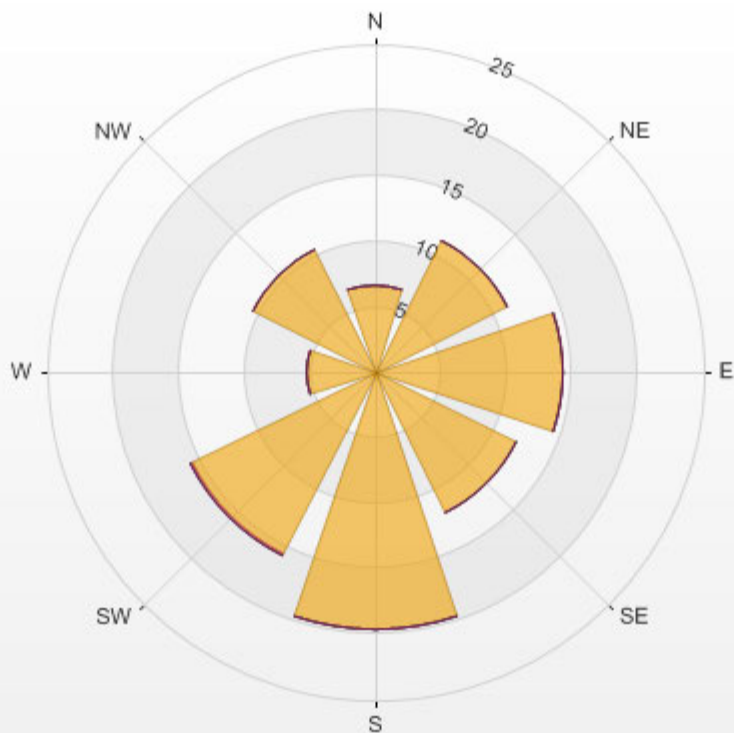
Wind: PRAMP_842
Poll.: PRAMP_842-NMHC [ppm]
Monthly: 18/11
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 4.66%

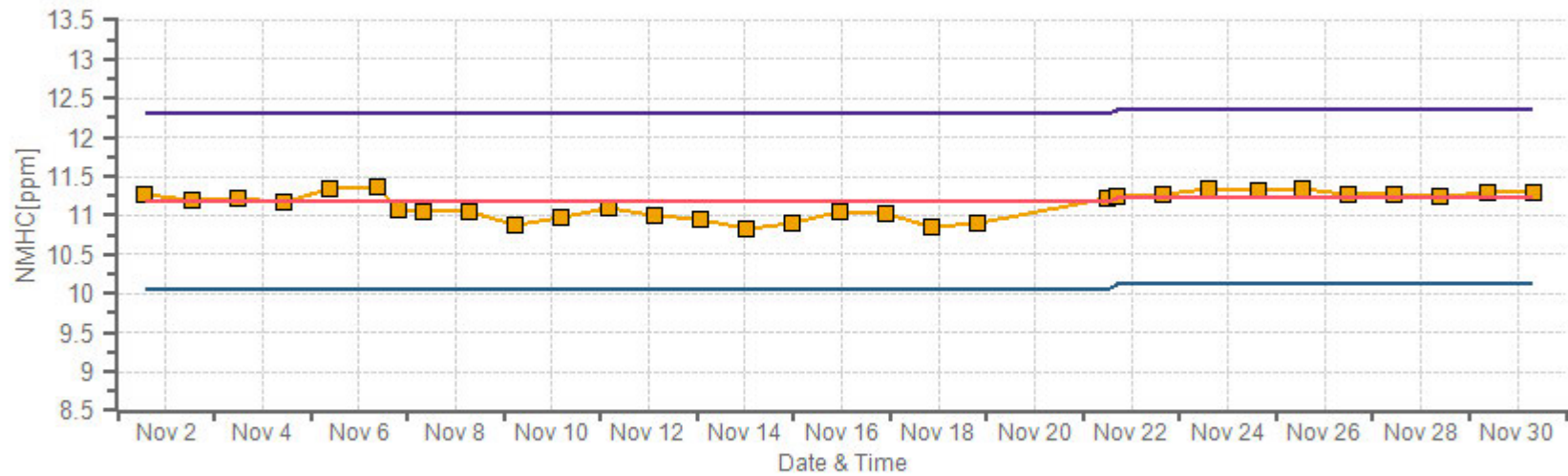
Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	6.6	0.0	0.0	0.0	0.0	6.6
NE	11.3	0.0	0.0	0.0	0.0	11.3
E	14.3	0.0	0.0	0.0	0.0	14.3
SE	12.1	0.0	0.0	0.0	0.0	12.1
S	19.6	0.0	0.0	0.0	0.0	19.6
SW	15.6	0.2	0.0	0.0	0.0	15.8
W	5.3	0.0	0.0	0.0	0.0	5.3
NW	10.5	0.0	0.0	0.0	0.0	10.5
Summary	95.2	0.2	0.0	0.0	0.0	95.3

PRAMP_842 Poll.: PRAMP_842-NMHC[ppm] 2018/11/01 00:00 - 2018/11/30 23:00 Calm: 4.66% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_842 Monthly: 18/11 Type: Span



Span Meas Span Ref Span Low Span High

WIND SPEED



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - November 2018

WIND SPEED Hourly Averages (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	9.4	9.8	9.7	8.0	7.2	6.6	4.5	3.7	3.3	2.9	1.5	3.0	4.8	6.0	5.5	4.3	4.3	5.0	5.9	5.7	5.1	7.8	7.2	9.1	1.5	9.8	3.0	24
2	10.8	10.8	10.7	10.9	9.7	8.4	9.0	10.2	9.6	8.0	5.4	5.3	4.2	3.2	1.8	3.7	3.1	2.3	3.8	3.7	5.9	7.2	6.1	5.3	1.8	10.9	4.0	24
3	5.2	5.6	3.7	9.1	10.8	8.9	6.3	6.9	5.2	4.7	5.8	5.7	5.4	5.9	5.5	5.0	6.9	6.9	7.3	8.6	10.2	9.4	7.5	10.4	3.7	10.8	3.7	24
4	9.4	9.8	10.6	11.0	11.3	11.4	12.1	12.8	12.1	11.7	12.4	13.2	13.1	12.6	12.2	12.9	10.4	11.4	10.6	9.1	9.3	8.6	6.2	6.5	6.2	13.2	7.3	24
5	4.6	6.0	5.3	5.9	5.7	5.5	4.2	2.8	3.0	4.4	5.8	4.4	5.5	4.5	5.7	4.8	4.9	4.6	2.7	1.9	1.1	1.5	4.0	1.8	1.1	6.0	3.7	24
6	1.0	1.6	1.8	2.5	3.9	2.7	2.7	2.9	2.3	3.6	5.5	5.4	7.3	7.0	7.9	7.5	7.4	4.9	7.1	8.4	6.9	5.9	4.1	4.4	1.0	8.4	2.9	24
7	3.8	3.2	3.5	3.7	2.8	3.5	3.4	3.0	5.2	4.1	4.3	3.1	7.7	9.4	7.9	8.7	8.2	5.3	5.7	5.4	4.2	4.6	5.1	3.6	2.8	9.4	3.6	24
8	2.9	3.4	2.9	2.6	2.1	2.4	2.5	3.0	2.6	3.3	3.2	5.0	10.0	8.1	9.0	10.7	7.9	7.1	9.4	8.9	8.9	10.4	11.0	11.8	2.1	11.8	5.4	24
9	8.4	8.5	8.5	11.3	13.6	7.6	7.3	9.7	3.1	5.0	7.3	5.0	4.6	5.5	5.3	4.8	5.2	5.5	6.1	8.2	8.5	8.0	5.9	4.1	3.1	13.6	3.6	24
10	2.5	2.2	2.5	1.8	2.6	2.8	3.2	1.7	1.9	1.2	2.7	6.0	10.2	9.9	9.7	8.7	5.1	1.4	1.6	1.3	0.5	0.9	2.2	2.7	0.5	10.2	1.4	24
11	4.1	3.5	6.3	7.8	7.0	6.2	7.5	6.4	3.6	4.4	4.1	5.3	6.7	8.1	7.8	5.2	4.5	4.0	5.9	8.7	11.8	12.4	10.9	10.4	3.5	12.4	3.6	24
12	12.5	10.0	8.7	7.3	9.1	7.4	7.0	8.7	9.0	9.9	9.7	11.5	13.1	15.1	13.5	9.6	10.6	9.8	10.4	7.0	7.3	9.8	10.4	14.5	7.0	15.1	9.8	24
13	10.1	9.9	13.5	15.2	14.6	6.3	12.5	12.5	16.6	17.2	14.6	13.0	11.4	11.8	10.9	12.1	10.5	8.8	12.3	14.1	14.5	16.2	14.9	16.1	6.3	17.2	12.3	24
14	17.6	12.4	17.3	17.8	10.6	8.9	13.0	15.5	11.3	7.4	6.5	6.5	6.8	10.7	7.7	6.2	7.5	6.3	5.4	7.6	9.7	7.3	7.7	7.1	5.4	17.8	5.7	24
15	7.7	9.7	10.0	9.5	9.2	7.1	6.8	5.8	6.2	7.1	8.2	8.8	9.0	11.6	13.3	13.3	11.8	10.6	12.8	12.2	12.5	10.9	11.3	10.9	5.8	13.3	6.0	24
16	10.8	9.3	8.5	7.0	4.0	2.7	0.7	1.1	2.1	2.8	2.9	5.5	9.4	13.2	13.5	12.2	11.8	12.0	14.5	12.1	13.3	15.3	17.3	14.2	0.7	17.3	5.7	24
17	8.1	5.9	8.9	8.4	8.7	9.3	5.8	5.1	5.2	4.1	2.1	2.3	1.7	3.1	5.0	9.9	13.6	11.0	12.6	9.2	9.6	12.3	10.8	14.0	1.7	14.0	7.3	24
18	13.8	11.6	12.1	9.0	8.2	8.6	11.5	13.4	11.4	12.5	9.6	9.2	7.6	5.9	7.9	5.8	3.6	1.7	1.1	3.4	5.1	5.2	2.8	2.3	1.1	13.8	2.3	24
19	7.7	11.5	10.8	11.2	12.1	9.9	9.3	9.6	10.1	9.8	12.1	9.5	13.2	11.7	10.5	11.6	9.3	7.4	6.0	6.3	6.3	5.6	4.8	8.0	4.8	13.2	8.9	24
20	7.8	5.4	4.5	9.8	7.6	12.7	20.3	9.1	3.6	7.0	8.2	13.6	15.7	13.3	8.8	9.2	9.6	13.4	13.8	11.2	7.9	3.6	8.8	6.6	3.6	20.3	8.8	24
21	8.8	11.0	13.0	14.7	11.2	12.7	10.5	10.1	8.3	6.4	5.9	6.3	10.9	7.3	6.1	4.1	4.1	2.7	1.8	3.7	3.7	3.5	6.6	4.7	1.8	14.7	6.8	24
22	7.5	7.0	8.2	15.1	13.0	10.6	11.9	17.6	16.8	15.0	16.0	17.2	15.3	14.7	14.0	11.4	9.7	5.7	5.8	7.2	7.0	7.7	7.7	8.8	5.7	17.6	8.9	24
23	10.7	9.9	10.8	9.4	7.7	2.6	3.3	1.8	3.5	2.6	2.9	2.7	3.0	6.3	5.1	6.8	7.6	6.0	5.6	5.0	3.4	3.7	4.0	4.2	1.8	10.8	4.4	24
24	5.6	5.7	5.6	5.7	7.1	2.7	2.9	2.7	4.4	9.9	9.0	8.8	7.7	5.8	4.2	3.4	1.9	2.3	0.8	0.3	0.8	0.8	1.6	1.7	0.3	9.9	1.8	24
25	3.6	3.5	3.3	3.6	4.1	4.0	4.4	5.8	6.8	7.3	7.2	10.3	8.3	6.2	9.4	5.8	4.3	7.7	10.6	8.0	14.8	9.4	7.3	3.1	3.1	14.8	5.7	24
26	5.3	3.9	2.6	4.3	5.1	5.1	5.6	3.8	4.2	4.8	3.4	2.3	4.1	5.5	4.1	3.8	5.7	5.6	4.8	4.8	4.4	3.0	6.3	6.8	2.3	6.8	4.0	24
27	5.9	5.4	5.0	5.1	4.4	3.9	3.8	5.3	5.5	6.3	6.6	7.5	7.3	5.6	5.6	5.5	6.0	6.5	7.0	5.4	3.5	2.4	2.4	3.3	2.4	7.5	5.1	24
28	2.9	5.5	9.0	9.2	9.7	8.8	9.3	8.9	11.0	7.2	7.1	9.5	10.8	9.6	10.3	11.5	14.6	12.0	13.2	11.9	10.2	7.4	9.9	12.7	2.9	14.6	9.2	24
29	12.0	9.6	6.6	6.6	5.4	5.6	3.4	4.6	3.5	2.4	2.4	5.3	5.5	4.8	6.7	7.9	8.7	7.2	5.8	5.8	4.9	4.8	2.9	1.9	1.9	12.0	4.3	24
30	1.7	2.8	3.2	4.6	4.8	4.6	6.6	6.2	4.8	4.0	5.1	5.4	4.4	5.0	4.8	4.5	4.1	2.9	2.3	2.0	1.5	1.1	1.7	2.2	1.1	6.6	2.0	24
HOURLY MAX	17.6	12.4	17.3	17.8	14.6	12.7	20.3	17.6	16.8	17.2	16.0	17.2	15.7	15.1	14.0	13.3	14.6	13.4	14.5	14.1	14.8	16.2	17.3	16.1				

STATUS FLAG CODES

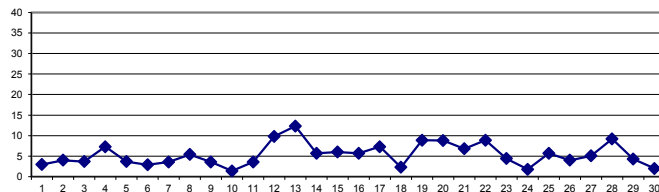
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	August 22, 2018
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

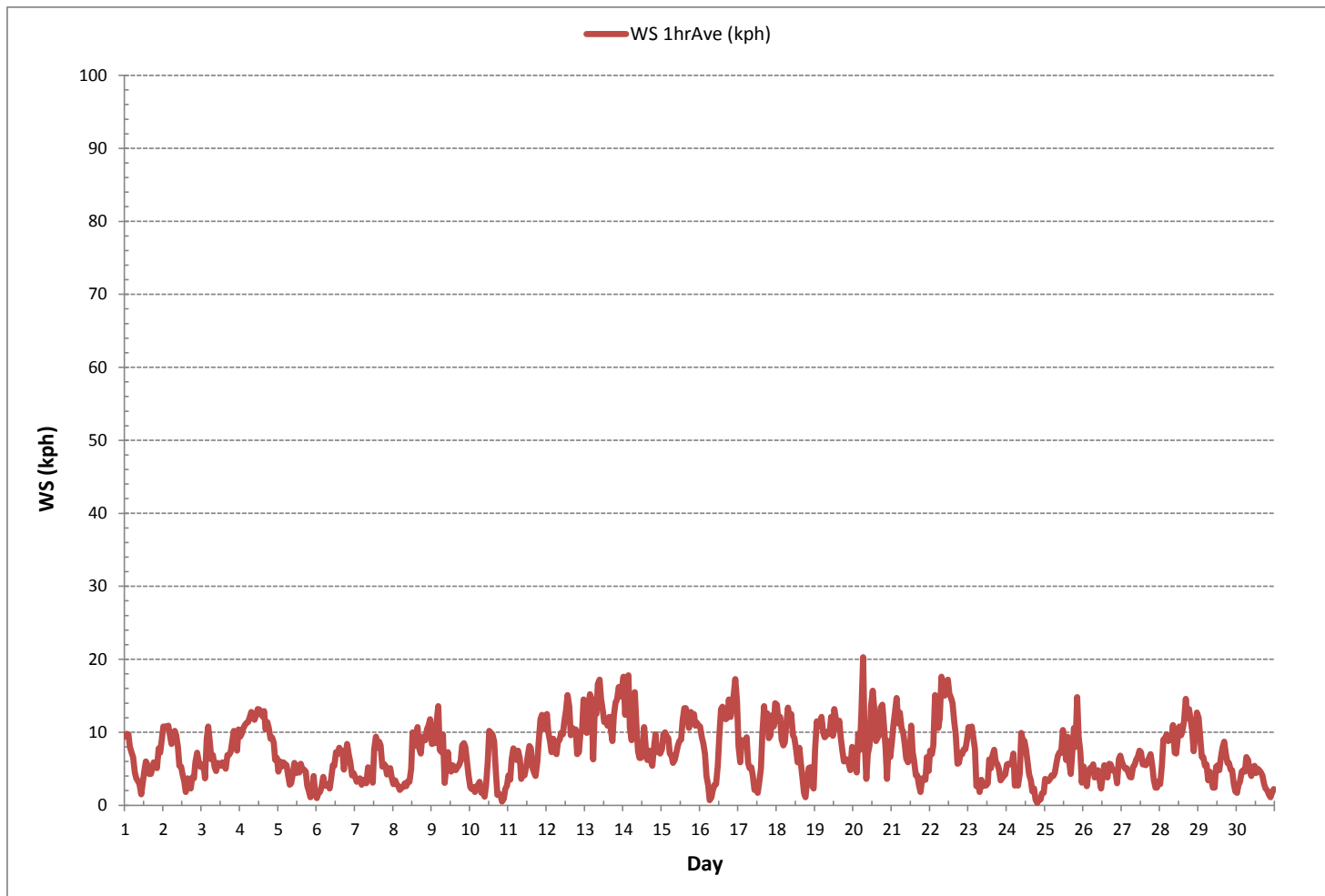
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		720				
MINIMUM 1-HR AVERAGE	0.3	kph	@ HOUR	19	ON DAY	24
MAXIMUM 1-HR AVERAGE:	20.3	kph	@ HOUR	6	ON DAY	20
MAXIMUM 24-HR AVERAGE:	12.3	kph			ON DAY	13
MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:		720	hrs
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	3.7		MONTHLY AVERAGE:		2.4	kp

24 HR AVERAGES November 2018



WIND SPEED Hourly Averages (WS kph)



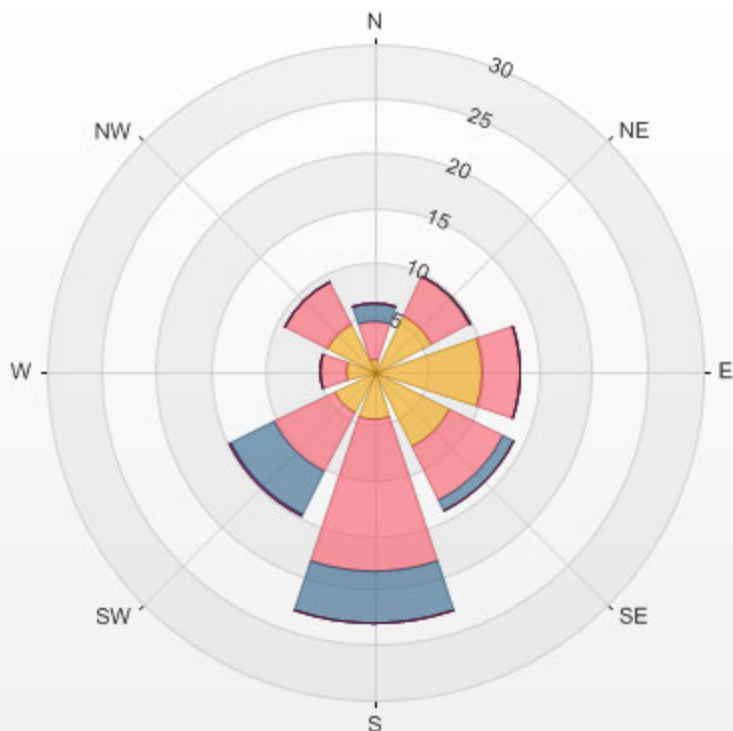
Wind: PRAMP_842
 Monitor: WSP [kph]
 Monthly: 18/11
 Type: WindRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

Calm: 4.03%

Direction	1.8-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0	Total
N	1.1	3.5	1.7	0.0	0.0	0.0	6.3
NE	5.8	3.9	0.1	0.0	0.0	0.0	9.9
E	9.9	3.5	0.0	0.0	0.0	0.0	13.3
SE	7.6	5.6	1.1	0.0	0.0	0.0	14.3
S	4.4	13.9	4.7	0.0	0.0	0.0	23.1
SW	4.2	6.1	4.4	0.1	0.0	0.0	14.9
W	2.6	2.4	0.0	0.0	0.0	0.0	5.0
NW	4.9	4.3	0.1	0.0	0.0	0.0	9.3
Summary	40.6	43.1	12.2	0.1	0.0	0.0	96.0

%	Icon	Classes (kph)
41		1.8-6.0
43		6.0-12.0
12		12.0-20.0
0		20.0-29.0
0		29.0-39.0
0		>39.0

PRAMP_842 2018/11/01 00:00 - 2018/11/30 23:00 Calm: 4.03% Calm Wind Avg Speed: 1.28(kph)



WIND DIRECTION



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - November 2018

WIND DIRECTION Hourly Averages (WD)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR AVG	24-HR
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	QUADRANT	RDGS.
DAY																										
1	NNW	NNW	NNW	NNW	NNW	NW	NNW	NW	NNW	NE	E	E	ESE	SE	ESE	ESE	E	ENE	ENE	E	ENE	ENE	ENE	E	NE	24
2	E	E	E	E	E	E	ENE	E	E	E	ENE	ENE	ENE	ENE	SE	W	SW	SW	S	S	SSW	SSW	SW	SSW	ESE	24
3	SSW	SW	WSW	WNW	NNW	S	E	NNW	NNW	NW	NW	NNE	NE	NE	NE	NNE	NNE	NE	NE	ENE	NE	NE	NE	NE	NNE	24
4	NE	NE	NE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	N	ESE	WNW	SW	NNW	NNW	NNW	NNW	N	WNW	SW	NNW	NNW	N	24
5	ESE	NE	NNE	NNE	NE	NE	NE	NNE	NE	ENE	ENE	ENE	NNE	NE	ENE	ENE	ESE	ENE	ENE	ESE	SSW	E	NNE	E	NE	24
6	SSW	WNW	W	NW	NW	NNW	NW	WNW	WNW	WNW	WNW	WNW	WSW	WSW	WSW	WSW	SW	SSW	S	S	S	SSE	SSE	SE	WSW	24
7	SE	SE	SE	SE	ESE	SE	SE	SE	SE	SSE	S	S	WSW	WSW	SW	SW	S	SSE	SSE	SE	SE	SE	SE	SE	S	24
8	ESE	SE	SE	ESE	E	ENE	ENE	ENE	ENE	E	SE	SSW	SSE	S	SE	SSE	S	SE	SE	SE	SE	SE	SE	SSE	SSE	24
9	SSE	S	S	S	S	SSE	SSE	S	SSW	SW	SW	WSW	WSW	WNW	WSW	WSW	SW	W	WNW	NNW	NNW	NNW	NW	NNW	SW	24
10	NW	SW	SW	ESE	S	SSE	SE	S	SSE	S	SW	NW	NW	NNW	NNW	WNW	ENE	NW	E	S	SW	W	SSW	WSW	WNW	24
11	NW	E	ENE	SSW	SW	NNW	ENE	SW	S	SW	WSW	SSE	SW	SW	SW	SW	SE	SSE	SE	SE	SE	SE	SE	SE	S	24
12	SSE	SSE	S	S	S	S	S	S	SSW	SSW	S	S	SSW	SSW	S	S	S	S	S	SSE	SSE	S	S	SSW	S	24
13	S	S	SW	SSW	SSW	SE	S	SSE	S	SSW	S	S	S	SSE	SSE	S	SSW	S	SSW	SSW	SSW	SSW	SW	SSW	SSW	24
14	SW	SSW	SSW	SSW	SSW	S	SSW	SW	SW	SW	SW	NW	NW	NNW	NNW	SW	NNE	W	NNW	S	ENE	NW	SW	N	SW	24
15	NW	S	S	NNE	NNE	ENE	NNE	NNE	N	ENE	NNE	S	E	ENE	N	N	N	NW	NNW	NNW	NNW	NNW	NNW	NNW	N	24
16	NNW	NNW	NNW	NNW	NW	SSE	SSW	SSW	SW	SE	S	SSW	SW	SSW	SSW	S	S	S	S	S	S	SSW	SSW	S	SSW	24
17	S	SSE	S	S	S	SSW	SSE	SSE	S	SSW	SSW	SSE	SE	WSW	SSE	SE	SSE	SSE	SSE	S	SSE	SSE	SSE	SSW	S	24
18	SW	SSW	SW	SW	WSW	WSW	WNW	N	NNW	NNW	NW	ESE	NE	NE	NW	NW	NW	W	SSE	E	SE	SE	E	ESE	W	24
19	SSE	S	S	S	S	SSW	S	S	S	S	S	S	SSW	SSW	S	S	S	SSE	SE	SE	SE	SE	SE	S	S	24
20	SSE	ESE	SSE	S	SSE	S	SSW	S	SSE	SSE	SSW	SSW	SSW	SSW	S	S	S	S	S	SSE	SE	SE	SE	SE	S	24
21	SE	SSE	SE	SSE	SE	SSE	SSE	SSE	SSE	SE	SE	SSE	S	SSE	SSE	SSE	ESE	SW	ESE	ENE	SE	S	WSW	SSE	SSE	24
22	S	SSE	S	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	WSW	W	WNW	WNW	WNW	NW	NW	24
23	NE	NNE	NNE	NNE	NE	S	ENE	SSW	SE	SSE	NE	ESE	SE	NE	NE	NE	NE	NE	ENE	ENE	E	ENE	ENE	E	NE	24
24	ENE	ENE	ENE	E	ESE	SE	SSE	SSE	SE	S	S	S	SW	WNW	WSW	W	NW	WNW	SSE	SSW	SE	ENE	ENE	E	SSE	24
25	E	ENE	ENE	ENE	E	E	ESE	ESE	SE	SE	SE	SSE	SSE	SE	S	S	SSE	SSE	SSE	SE	SSE	SE	SSE	SSE	SE	24
26	E	E	ENE	ENE	ENE	ENE	ESE	ENE	NE	ENE	ENE	E	ESE	SE	SW	E	E	E	E	E	ENE	NE	NE	E	E	24
27	E	E	E	ESE	E	ENE	ENE	E	ENE	ENE	ENE	ENE	ENE	ESE	E	E	ENE	ENE	E	E	E	E	SE	ESE	E	24
28	E	S	SSW	SSW	SSW	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	24
29	SW	WSW	NW	NW	NW	WNW	NW	NW	NNW	NNW	WSW	SW	SW	SW	SW	SW	WSW	W	W	WNW	NW	NW	NNE	W	W	24
30	WNW	NNW	NNW	NW	WNW	NNW	NW	WSW	WNW	S	NNW	NNW	W	NNW	ESE	NNE	NE	NE	W	ENE	NE	NE	ENE	NE	NNW	24

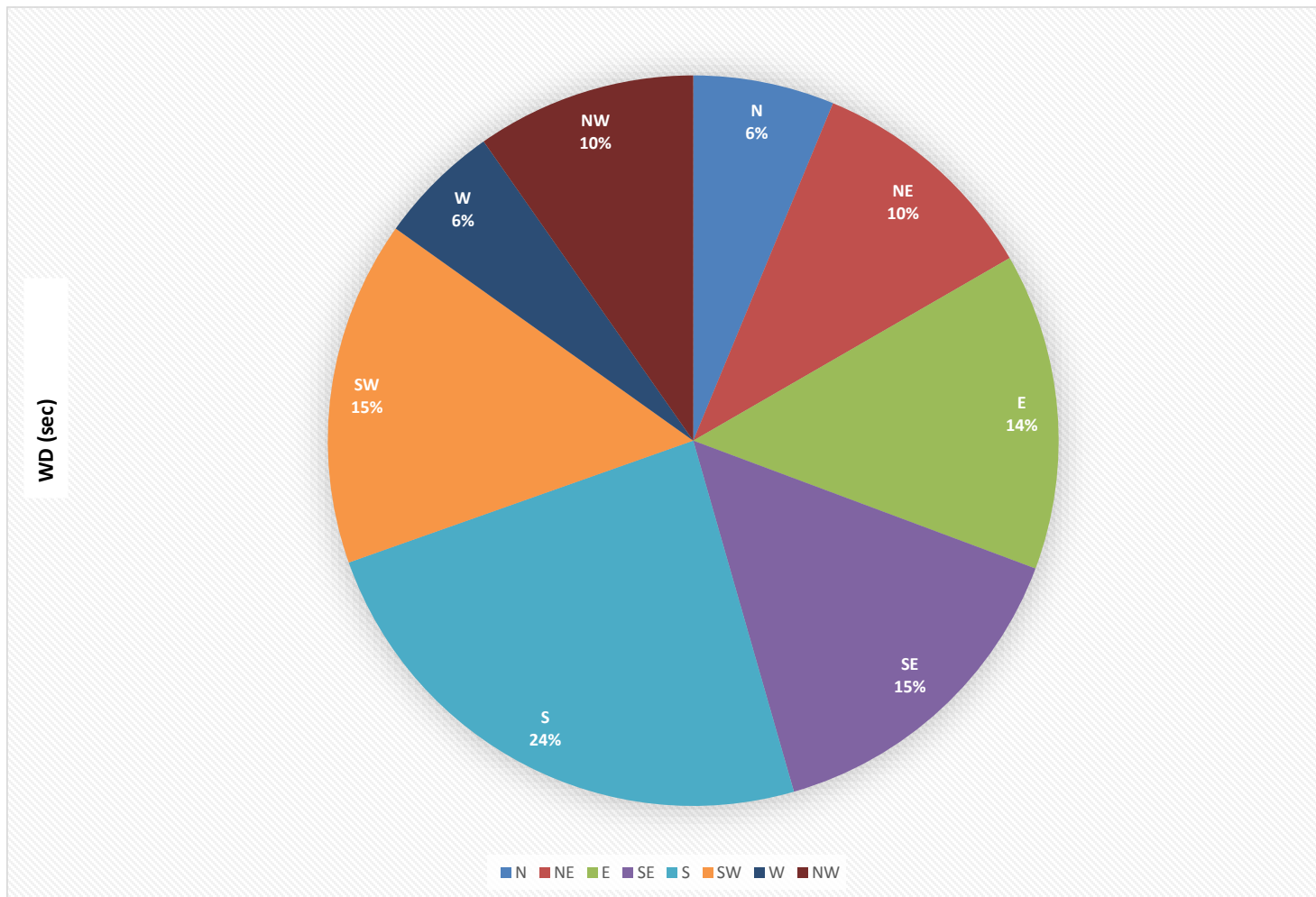
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

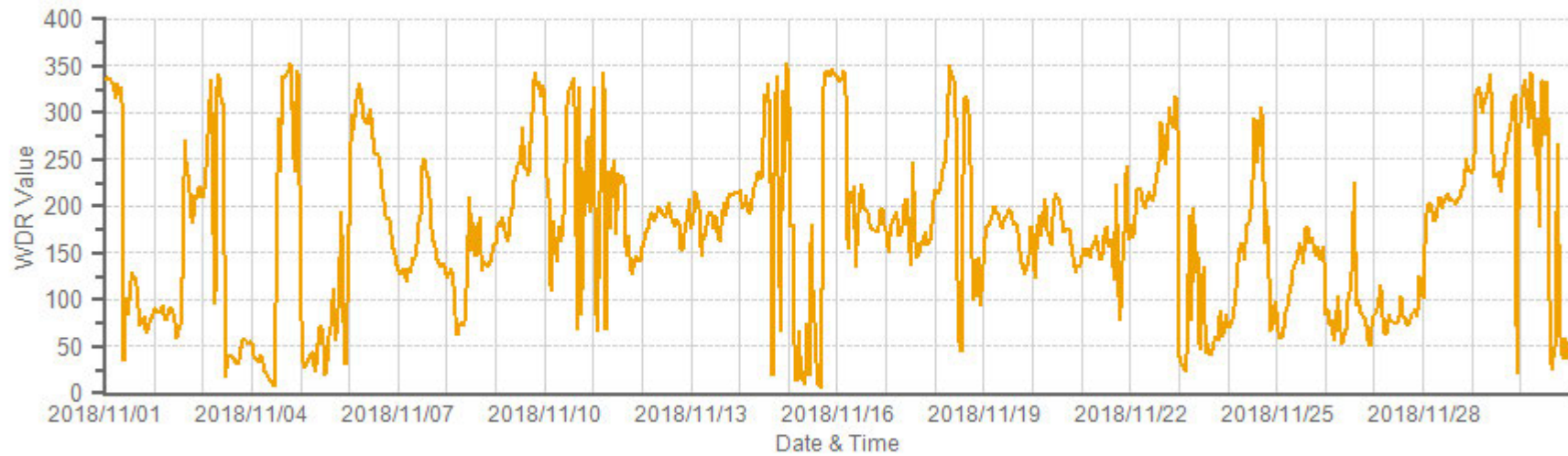
LAST CALIBRATION:	August 22, 2018
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	720	hrs
STANDARD DEVIATION:	88		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	179 (S)	

WIND DIRECTION Hourly Averages (WD)



WDR[degwdr] Station: PRAMP_842 Monthly: 18/11 Type: AVG 1 Hr. [1 Hr.]



— WDR[degwdr]

RELATIVE HUMIDITY



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - November 2018

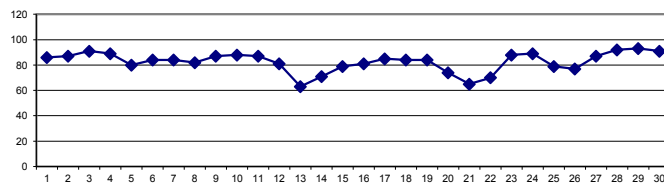
RELATIVE HUMIDITY Hourly Averages (RH %)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	95	95	95	95	95	95	95	94	94	91	87	84	83	80	75	74	75	76	77	78	80	81	81	81	74	95	86	24
2	82	81	81	81	84	88	88	87	87	87	85	87	84	84	83	84	85	88	91	91	93	93	94	95	81	95	87	24
3	95	95	95	95	93	91	90	91	91	91	90	87	86	87	88	91	92	92	93	92	92	91	90	91	86	95	91	24
4	92	92	92	92	91	91	91	91	91	90	89	88	87	86	85	87	88	88	87	87	86	87	88	88	85	92	89	24
5	87	84	85	84	84	83	83	83	83	81	78	76	75	74	75	76	78	78	79	80	80	82	79	80	74	87	80	24
6	82	84	85	86	87	87	87	87	86	84	82	79	78	76	76	77	78	84	88	88	88	87	86	85	76	88	84	24
7	85	83	85	84	83	83	83	82	83	83	84	84	82	81	77	79	83	86	86	86	86	86	87	85	77	87	84	24
8	85	85	84	82	80	79	79	80	80	81	79	81	81	78	77	77	81	84	85	87	86	86	83	83	77	87	82	24
9	85	86	86	85	84	86	89	89	91	88	86	80	77	78	79	82	86	93	94	93	93	93	92	90	77	94	87	24
10	90	91	92	92	92	91	92	92	92	91	86	83	83	82	81	77	76	83	90	91	91	91	91	91	76	92	88	24
11	90	90	90	89	90	89	89	87	85	85	84	86	87	88	85	79	81	89	89	88	87	86	85	86	79	90	87	24
12	86	86	87	88	88	88	89	88	87	85	82	79	72	73	77	77	78	77	74	79	80	75	74	65	65	89	81	24
13	69	68	62	57	54	71	70	70	65	62	58	57	55	60	65	63	64	68	66	59	59	56	62	68	54	71	63	24
14	67	68	69	70	70	72	72	73	73	71	67	64	60	66	64	68	71	73	75	77	79	80	81	83	60	83	71	24
15	85	85	81	77	74	78	79	74	74	74	73	74	76	84	81	78	81	79	79	80	81	81	81	80	73	85	79	24
16	82	82	81	82	82	83	82	81	83	86	84	81	77	74	73	75	78	81	82	84	85	84	85	86	73	86	81	24
17	87	86	86	86	86	87	86	85	86	85	84	79	77	76	84	83	83	84	83	86	91	93	93	87	76	93	85	24
18	82	81	80	80	79	79	82	87	87	89	86	84	82	83	83	84	85	85	86	87	87	88	89	92	79	92	84	24
19	94	92	91	90	88	86	86	86	87	85	84	79	75	73	73	73	77	81	86	87	88	90	90	86	73	94	84	24
20	81	91	90	77	81	75	71	81	88	84	70	63	63	62	67	68	71	72	70	71	73	75	69	73	62	91	74	24
21	71	66	69	72	72	72	72	69	68	68	64	53	49	50	48	48	55	63	68	76	76	77	73	72	48	77	65	24
22	69	71	74	68	71	75	69	67	67	67	64	64	62	60	61	66	70	75	75	76	77	77	78	79	60	79	70	24
23	79	81	81	84	87	89	89	91	92	92	91	90	89	88	87	88	88	89	90	90	91	91	92	92	79	92	88	24
24	91	90	89	89	87	87	87	87	87	86	86	85	87	87	88	90	92	92	92	91	91	90	89	88	85	92	89	24
25	88	87	86	86	86	88	89	91	92	92	91	84	76	68	60	57	62	67	71	74	73	74	76	79	57	92	79	24
26	86	84	88	86	86	85	78	75	79	77	75	70	65	62	64	69	70	71	76	78	79	80	82	83	62	88	77	24
27	84	83	83	83	84	88	90	93	93	91	84	83	80	80	80	83	86	88	88	91	92	93	94	94	80	94	87	24
28	95	95	94	95	96	96	97	97	96	96	95	93	90	89	87	86	86	85	86	88	90	92	93	90	85	97	92	24
29	91	91	93	93	93	94	94	93	93	93	92	91	92	93	93	95	95	96	96	95	94	94	93	93	91	96	93	24
30	93	94	94	94	94	94	94	94	93	91	89	90	89	89	89	89	90	91	91	90	90	90	91	91	89	94	91	24
HOURLY MAX	95	95	95	95	96	96	97	97	96	96	95	93	92	93	93	95	95	96	96	95	94	94	94	95				
HOURLY AVG	85	85	85	84	84	85	85	85	85	84	82	79	77	77	77	77	80	82	83	84	85	85	85	85				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HR AVERAGES November 2018

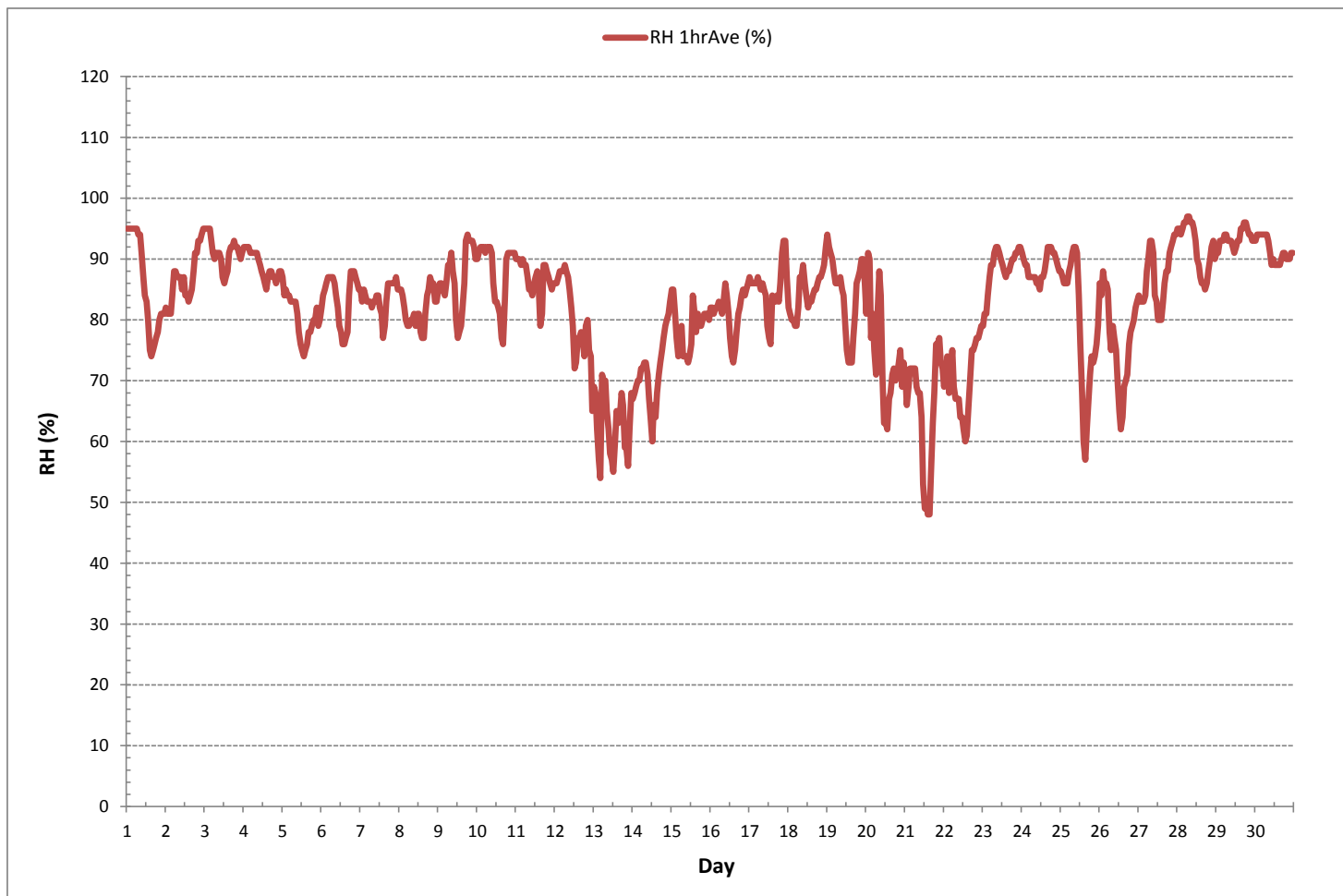


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	48	%	@ HOUR	14	ON DAY	21
MAXIMUM 1-HR AVERAGE:	97	%	@ HOUR	6	ON DAY	28
MAXIMUM 24-HR AVERAGE:	93	%			ON DAY	29

OPERATIONAL TIME:	720	hrs
AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	9	
MONTHLY AVERAGE:	83	%

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - November 2018

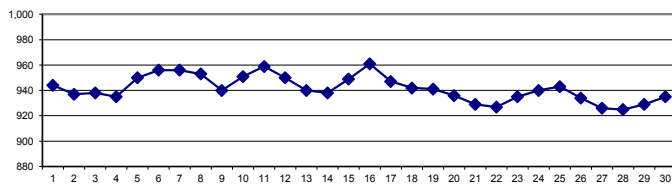
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	943	944	945	946	946	947	947	947	947	947	947	947	946	946	945	945	944	943	942	941	941	940	939	938	938	947	944	24	
2	937	936	936	935	935	935	935	935	935	936	936	937	937	938	938	939	939	940	940	940	940	940	940	940	935	940	937	24	
3	940	940	940	940	940	941	941	941	941	941	940	940	939	938	937	937	937	936	935	934	933	932	932	930	930	941	938	24	
4	929	929	929	928	927	927	928	928	929	930	931	933	934	935	936	938	939	940	941	942	943	944	944	945	927	945	935	24	
5	945	946	946	947	947	947	947	948	948	949	949	950	950	950	950	951	951	952	952	952	953	953	953	954	945	954	950	24	
6	954	954	955	955	955	955	955	956	956	956	956	955	955	955	955	955	955	955	955	955	955	955	955	955	954	958	956	24	
7	957	957	957	956	956	956	956	956	956	956	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	957	956	24
8	955	955	955	955	955	955	955	955	955	955	954	955	954	953	953	952	952	951	951	950	949	948	947	945	945	955	953	24	
9	944	943	942	941	940	939	938	937	937	937	937	938	938	938	939	939	939	940	941	942	943	944	945	946	937	946	940	24	
10	946	947	947	948	948	948	948	948	949	949	949	950	950	951	951	952	952	953	954	954	955	956	956	957	946	957	951	24	
11	957	958	958	959	959	960	960	961	962	962	962	963	962	962	962	960	960	958	958	957	956	955	954	954	954	963	959	24	
12	953	953	952	952	951	951	951	951	951	951	951	951	950	950	950	949	949	949	948	948	948	947	947	947	947	953	950	24	
13	946	946	945	944	944	943	942	942	942	941	941	941	940	939	939	938	938	938	938	937	938	937	937	937	937	937	946	940	24
14	936	936	935	935	935	936	936	936	936	936	937	937	937	938	938	939	939	940	940	941	942	942	943	944	935	944	938	24	
15	944	945	946	946	947	947	947	947	947	947	947	947	948	947	947	948	948	949	951	953	954	955	957	958	944	958	949	24	
16	959	960	961	961	962	962	963	963	963	963	963	963	962	962	962	961	961	960	959	958	957	957	956	955	955	963	961	24	
17	954	954	953	952	951	951	950	950	950	949	949	949	948	947	947	946	945	944	942	941	939	938	938	937	937	954	947	24	
18	936	936	936	936	937	938	938	940	941	942	943	944	944	945	945	945	945	945	945	944	944	943	943	943	936	945	942	24	
19	943	942	942	942	941	941	941	941	941	941	941	941	941	940	940	940	940	940	940	940	939	939	939	939	939	943	941	24	
20	938	938	938	937	937	937	937	936	936	936	936	936	936	936	936	936	936	935	935	935	934	934	934	933	933	938	936	24	
21	933	933	932	931	931	931	930	930	930	930	929	929	929	928	928	927	927	926	926	925	925	925	925	925	925	925	933	929	24
22	926	926	926	926	926	925	925	925	925	925	926	926	926	926	927	927	928	928	928	929	930	930	931	931	925	931	927	24	
23	932	932	932	933	933	934	934	935	935	935	935	935	935	935	935	936	936	936	936	937	937	937	937	938	932	938	935	24	
24	938	938	938	938	938	938	938	938	938	938	938	939	939	939	940	940	941	942	942	943	943	944	944	944	938	944	940	24	
25	945	945	945	945	944	944	944	944	943	943	943	943	943	943	943	942	942	942	942	942	941	941	941	941	941	945	943	24	
26	940	940	940	939	938	937	937	936	936	935	935	934	934	933	933	933	932	931	930	930	930	929	929	929	929	940	934	24	
27	929	929	929	928	928	928	927	927	927	927	926	925	924	925	925	925	925	925	925	924	924	924	924	925	925	924	929	926	24
28	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	926	926	926	926	926	926	926	927	925	927	925	24	
29	927	927	927	927	928	928	928	928	928	929	929	929	929	929	929	929	930	930	930	930	930	930	931	931	927	931	929	24	
30	931	931	932	932	932	933	933	933	934	934	935	935	936	936	936	937	937	937	938	938	938	939	939	940	931	940	935	24	
HOURLY MAX	959	960	961	961	962	962	963	963	963	963	963	963	962	962	962	961	961	960	959	958	957	957	957	958					
HOURLY AVG	941	942	941	941	941	941	941	941	941	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

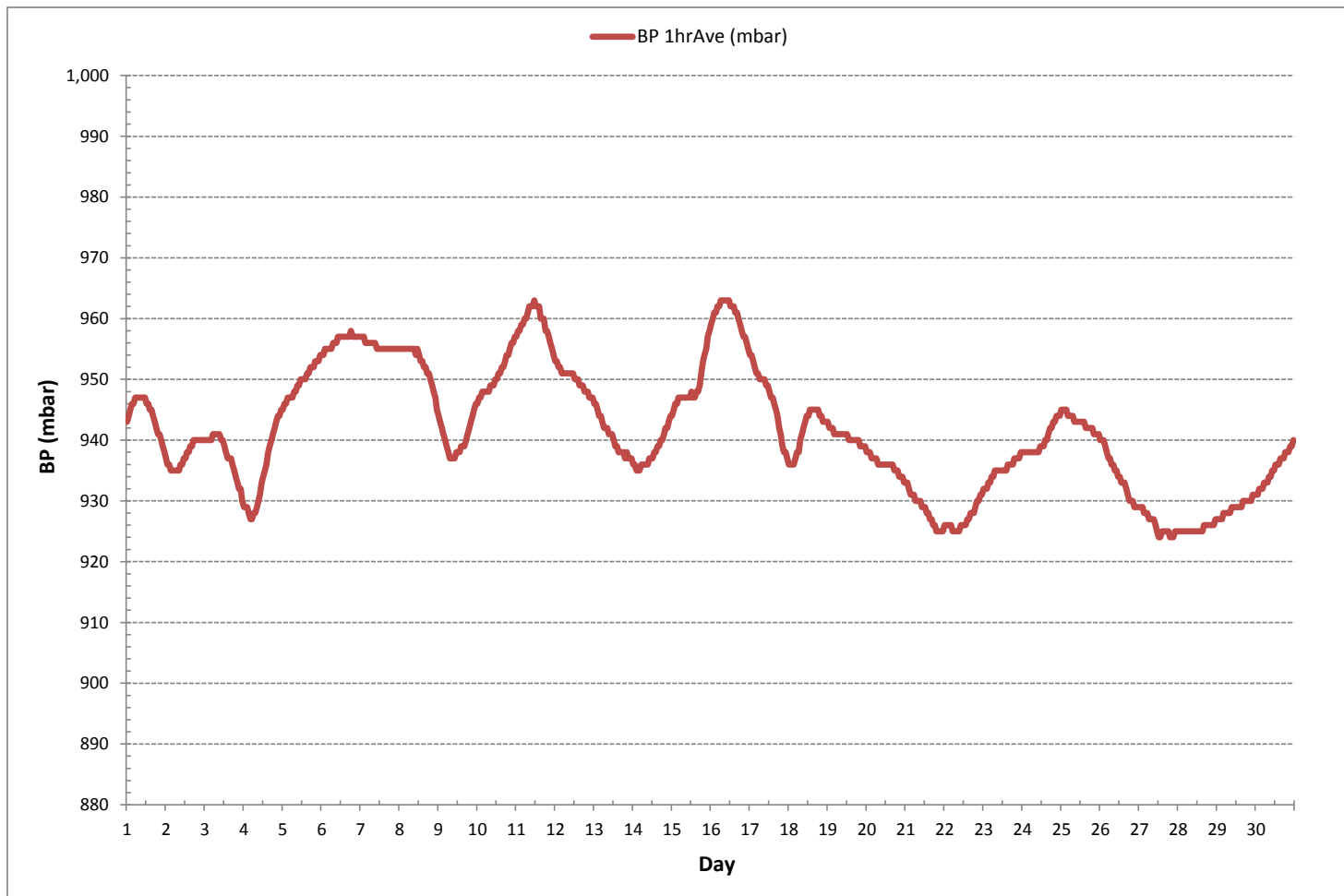
24 HR AVERAGES November 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	924	mbar	@ HOUR	12	ON DAY	27
MAXIMUM 1-HR AVERAGE:	963	mbar	@ HOUR	11	ON DAY	11
MAXIMUM 24-HR AVERAGE:	961	mbar			ON DAY	16
OPERATIONAL TIME:					720	hrs
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	10				MONTHLY AVERAGE:	941 mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE

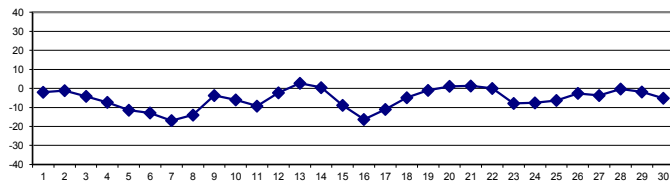
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY 1	-3.4	-3.4	-3.2	-3.1	-3.0	-3.1	-3.0	-2.9	-2.8	-2.5	-2.2	-1.9	-1.7	-1.1	-0.8	-0.9	-1.0	-1.3	-1.4	-1.4	-1.4	-1.4	-1.1	-1.1	-3.4	-0.8	-2.0	24
2	-1.2	-1.0	-0.9	-0.9	-1.3	-1.6	-1.7	-1.9	-2.0	-2.0	-1.8	-1.7	-1.2	-0.8	-0.3	-0.2	-0.5	-1.1	-1.5	-1.4	-1.2	-1.0	-1.1	-1.2	-2.0	-0.2	-1.2	24
3	-1.2	-1.2	-1.2	-1.9	-3.9	-4.6	-4.9	-5.3	-5.3	-5.4	-5.1	-4.5	-4.3	-3.9	-4.0	-4.1	-4.2	-4.3	-4.3	-4.5	-4.9	-5.1	-5.0	-5.2	-5.4	-1.2	-4.1	24
4	-5.2	-5.3	-5.4	-5.3	-5.2	-5.3	-5.7	-5.9	-6.1	-6.3	-6.3	-6.5	-6.6	-6.8	-7.1	-7.9	-8.5	-9.1	-9.5	-9.7	-10.0	-10.4	-10.8	-11.0	-11.0	-5.2	-7.3	24
5	-10.9	-11.2	-11.3	-11.4	-11.4	-11.5	-11.7	-11.6	-11.4	-11.3	-11.3	-11.0	-10.8	-10.8	-11.0	-11.0	-11.3	-11.5	-11.6	-11.6	-11.6	-11.8	-11.7	-11.7	-11.8	-10.8	-11.4	24
6	-11.8	-11.8	-12.0	-12.0	-12.2	-12.2	-12.1	-12.2	-12.2	-11.9	-11.6	-11.1	-11.2	-11.2	-11.3	-11.2	-12.3	-14.5	-15.3	-14.8	-15.2	-15.8	-16.6	-17.1	-17.1	-11.1	-12.9	24
7	-17.6	-18.7	-18.5	-18.7	-19.4	-19.5	-19.7	-19.8	-20.1	-18.6	-16.1	-13.5	-13.6	-13.4	-11.9	-13.0	-13.6	-15.0	-16.4	-17.1	-17.6	-17.5	-17.2	-18.2	-20.1	-11.9	-16.9	24
8	-18.3	-18.2	-19.6	-20.7	-22.0	-22.8	-23.1	-22.5	-22.2	-17.2	-13.1	-12.2	-10.0	-9.2	-7.8	-7.3	-8.3	-9.1	-9.9	-10.1	-9.5	-9.1	-7.7	-6.8	-23.1	-6.8	-14.0	24
9	-6.4	-5.6	-4.7	-3.6	-3.4	-4.3	-5.2	-4.7	-5.3	-4.4	-4.4	-3.1	-2.6	-1.7	-2.3	-2.1	-2.0	-2.1	-1.9	-1.9	-2.9	-4.1	-5.2	-5.5	-6.4	-1.7	-3.7	24
10	-5.7	-6.1	-6.8	-6.7	-6.3	-6.5	-6.6	-6.3	-5.5	-4.9	-2.5	-1.3	-1.8	-2.5	-3.0	-3.6	-4.4	-6.1	-8.3	-8.8	-9.5	-10.0	-10.1	-10.2	-10.2	-1.3	-6.0	24
11	-8.8	-8.4	-8.4	-8.3	-8.6	-8.8	-9.0	-9.3	-9.6	-9.4	-8.8	-9.0	-9.2	-9.4	-9.4	-9.0	-9.8	-12.3	-11.7	-11.4	-10.6	-8.7	-7.6	-6.8	-12.3	-6.8	-9.3	24
12	-6.0	-5.8	-5.6	-5.7	-5.6	-5.2	-5.2	-4.8	-4.6	-4.0	-3.2	-1.8	-0.1	-0.2	-0.8	-0.3	-0.2	0.0	0.7	-0.3	-0.6	0.7	0.8	2.1	-6.0	2.1	-2.3	24
13	1.1	0.7	1.7	2.6	3.2	-0.2	0.0	0.3	1.7	2.5	3.5	4.1	4.7	4.2	3.1	3.2	3.1	2.6	3.2	4.5	4.1	3.9	3.1	3.3	-0.2	4.7	2.7	24
14	4.2	3.3	3.2	3.5	3.4	2.8	2.5	2.3	1.9	2.2	2.9	3.8	4.6	2.2	1.6	-0.3	-1.5	-2.3	-3.1	-3.7	-4.6	-5.2	-5.8	-6.3	-6.3	4.6	0.5	24
15	-6.4	-6.2	-6.1	-6.3	-6.5	-7.0	-7.2	-7.4	-7.4	-7.6	-7.5	-7.5	-7.8	-8.3	-8.4	-8.7	-9.6	-10.1	-11.6	-12.5	-12.8	-13.1	-13.3	-13.9	-13.9	-6.1	-8.9	24
16	-14.6	-14.9	-15.2	-15.5	-16.5	-18.0	-20.7	-21.7	-19.5	-18.2	-17.1	-15.6	-15.0	-14.7	-14.2	-14.5	-15.5	-16.3	-16.1	-16.3	-16.3	-14.5	-14.2	-15.8	-21.7	-14.2	-16.3	24
17	-15.9	-17.1	-16.3	-15.9	-16.1	-15.9	-16.2	-17.0	-16.9	-15.2	-12.3	-10.8	-8.5	-8.6	-9.1	-9.0	-8.8	-8.3	-7.3	-5.9	-5.1	-4.2	-2.9	-1.6	-17.1	-1.6	-11.0	24
18	-1.1	-0.9	-0.6	-0.3	0.1	0.4	-0.6	-3.6	-5.6	-7.3	-7.7	-7.7	-7.2	-6.9	-8.2	-7.9	-8.0	-7.6	-7.1	-6.2	-5.6	-5.3	-5.7	-7.6	-8.2	0.4	-4.9	24
19	-6.5	-5.0	-4.4	-3.4	-2.4	-2.1	-1.9	-2.0	-2.0	-1.1	-0.1	1.5	2.4	2.8	2.9	3.0	1.6	0.4	-0.8	-1.2	-1.6	-1.9	-2.0	-1.3	-6.5	3.0	-1.0	24
20	-0.1	-2.6	-3.0	0.5	-0.8	1.6	2.7	-0.4	-2.3	-1.3	2.1	4.2	4.2	4.4	3.4	3.0	2.2	2.0	2.3	1.8	1.1	0.3	1.7	0.7	-3.0	4.4	1.1	24
21	1.1	2.1	1.6	0.9	0.6	0.2	-0.1	0.2	0.5	0.4	1.5	4.2	5.5	5.1	5.6	5.4	3.2	0.8	-0.4	-2.4	-2.1	-2.0	-0.6	-0.2	-2.4	5.6	1.3	24
22	0.4	0.0	-0.7	1.2	1.2	0.3	1.3	1.4	1.3	0.8	1.4	1.4	1.6	2.2	2.0	1.1	-0.4	-2.1	-1.7	-1.7	-2.0	-2.6	-3.2	-4.2	-4.2	2.2	0.0	24
23	-5.5	-6.1	-6.1	-6.8	-8.2	-9.0	-8.4	-8.3	-8.4	-8.3	-7.9	-7.7	-7.4	-7.4	-7.4	-7.6	-7.7	-7.9	-8.2	-8.5	-8.8	-9.0	-9.2	-9.5	-9.5	-5.5	-7.9	24
24	-9.6	-9.3	-9.0	-8.4	-7.6	-7.1	-6.9	-6.5	-6.1	-5.1	-4.9	-4.4	-4.0	-4.5	-4.9	-5.9	-7.2	-7.7	-7.7	-8.0	-8.7	-10.5	-12.3	-13.5	-13.5	-4.0	-7.5	24
25	-14.3	-15.0	-15.6	-15.5	-15.7	-13.9	-12.3	-11.1	-7.8	-6.6	-5.3	-2.8	-0.7	0.6	1.4	1.3	-0.2	-1.4	-2.1	-2.7	-2.2	-2.2	-2.7	-4.1	-15.7	1.4	-6.3	24
26	-6.3	-6.1	-7.0	-6.4	-6.4	-5.9	-3.8	-3.2	-3.6	-2.9	-2.1	-0.6	0.7	1.3	1.4	0.8	0.6	0.0	-1.0	-1.6	-1.8	-2.2	-2.9	-3.2	-7.0	1.4	-2.6	24
27	-3.3	-3.2	-2.9	-2.8	-3.5	-4.8	-5.7	-6.9	-7.2	-6.5	-4.3	-4.0	-3.1	-2.6	-2.3	-2.7	-3.1	-3.5	-3.5	-3.1	-2.6	-2.2	-2.1	-1.9	-7.2	-1.9	-3.7	24
28	-1.6	-0.9	-0.5	-0.6	-0.8	-0.9	-1.6	-2.1	-2.2	-2.4	-1.8	-1.0	-0.3	-0.1	0.7	0.9	1.0	1.3	1.7	1.5	1.3	1.0	0.6	0.6	-2.4	1.7	-0.3	24
29	0.3	-0.2	-0.9	-1.6	-1.9	-2.2	-2.4	-2.6	-2.9	-2.9	-2.6	-2.6	-2.1	-1.7	-1.4	-0.8	-0.5	-0.7	-0.9	-1.5	-2.0	-2.5	-2.9	-3.2	-3.2	0.3	-1.8	24
30	-3.4	-3.4	-3.4	-3.5	-3.8	-4.1	-4.4	-4.8	-5.1	-5.2	-5.4	-5.5	-5.4	-5.4	-5.6	-5.8	-6.1	-6.2	-6.2	-6.4	-6.5	-6.5	-6.7	-6.8	-6.8	-3.4	-5.2	24
HOURLY MAX	4.2	3.3	3.2	3.5	3.4	2.8	2.7	2.3	1.9	2.5	3.5	4.2	5.5	5.1	5.6	5.4	3.2	2.6	3.2	4.5	4.1	3.9	3.1	3.3				
HOURLY AVG	-5.9	-6.1	-6.1	-5.9	-6.1	-6.4	-6.5	-6.7	-6.6	-6.1	-5.1	-4.3	-3.7	-3.6	-3.6	-3.8	-4.4	-5.1	-5.4	-5.6	-5.7	-5.8	-5.8	-6.0				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

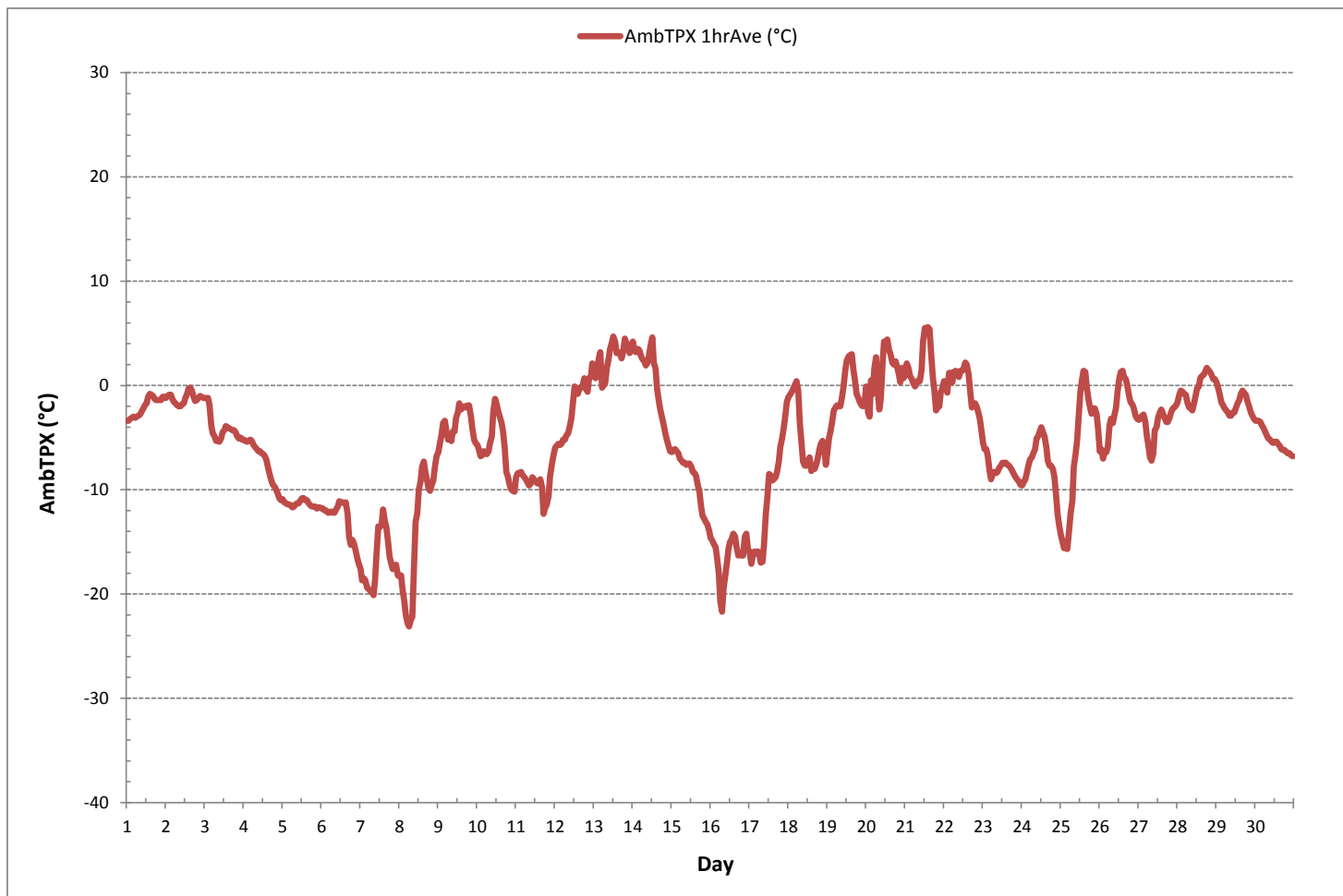
24 HR AVERAGES November 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-23.1 °C	@ HOUR	6	ON DAY	8
MAXIMUM 1-HR AVERAGE:	5.6 °C	@ HOUR	14	ON DAY	21
MAXIMUM 24-HR AVERAGE:	2.7 °C			ON DAY	13
OPERATIONAL TIME:				720	hrs
AMD OPERATION UPTIME:				100.0	%
STANDARD DEVIATION:	5.8	MONTHLY AVERAGE:		-5.4	°C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

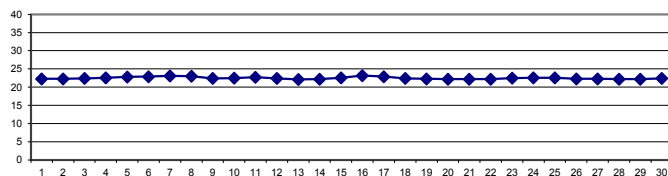
STATION TEMPERATURE Hourly Averages (StnTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	22.3	22.3	22.4	22.4	22.4	22.3	22.4	22.4	22.3	22.4	22.2	22.3	22.1	22.3	22.2	22.3	22.3	22.3	22.3	22.3	22.4	22.3	22.3	22.4	22.1	22.4	22.3	24	
2	22.3	22.4	22.3	22.4	22.4	22.3	22.3	22.4	22.3	22.4	22.3	22.3	22.2	22.2	22.1	22.1	22.2	22.3	22.4	22.4	22.3	22.3	22.3	22.2	22.1	22.4	22.3	24	
3	22.3	22.3	22.3	22.3	22.3	22.4	22.5	22.5	22.5	22.5	22.4	22.3	22.4	22.2	22.4	22.3	22.4	22.4	22.5	22.4	22.5	22.5	22.5	22.5	22.2	22.5	22.4	24	
4	22.5	22.5	22.6	22.6	22.5	22.4	22.6	22.5	22.5	22.5	22.6	22.5	22.4	22.4	22.5	22.5	22.6	22.7	22.7	22.8	22.8	22.8	22.9	22.9	22.4	22.9	22.6	24	
5	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.8	22.8	22.9	22.7	22.7	22.5	22.7	22.6	22.8	22.8	22.8	22.9	22.9	22.8	22.8	22.8	22.5	22.9	22.8	24	
6	22.8	22.8	22.8	22.9	22.8	22.8	22.9	22.8	22.9	22.8	22.7	22.7	22.7	22.7	22.6	22.7	22.6	23.2	23.2	23.4	23.3	23.3	23.3	23.4	22.6	23.4	22.9	24	
7	23.3	23.5	23.4	23.5	23.5	23.5	23.6	23.6	23.3	23.2	22.2	22.4	22.3	22.8	22.6	22.7	22.8	23.1	23.2	23.4	23.3	23.3	23.3	23.4	22.2	23.6	23.1	24	
8	23.5	23.5	23.6	23.6	23.6	23.6	23.7	23.7	23.6	23.1	22.3	22.3	22.6	22.6	22.6	22.5	22.5	22.8	23.0	22.9	22.9	22.9	22.8	22.7	22.3	23.7	23.0	24	
9	22.7	22.6	22.6	22.5	22.5	22.5	22.5	22.6	22.7	22.4	22.1	22.0	22.0	22.1	22.2	22.1	22.2	22.2	22.3	22.2	22.3	22.4	22.6	22.5	22.0	22.7	22.4	24	
10	22.5	22.5	22.6	22.5	22.5	22.5	22.5	22.5	22.5	22.4	22.3	22.1	22.1	22.2	22.2	22.3	22.5	22.6	22.8	22.8	22.8	22.8	22.8	22.9	22.1	22.9	22.5	24	
11	22.8	22.8	22.6	22.6	22.6	22.7	22.7	22.7	22.7	22.7	22.6	22.6	22.5	22.5	22.6	22.7	23.0	23.1	23.2	23.1	22.9	22.8	22.7	22.5	23.2	22.7	24		
12	22.6	22.7	22.6	22.6	22.6	22.5	22.5	22.5	22.4	22.4	22.3	22.3	22.1	22.2	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.4	22.1	22.7	22.4	24	
13	22.2	22.3	22.3	22.3	22.2	22.2	22.4	22.3	22.3	22.2	21.8	21.7	21.7	21.8	21.9	22.0	22.0	22.2	22.1	22.2	22.1	22.3	22.3	22.4	21.7	22.4	22.1	24	
14	22.3	22.3	22.3	22.2	22.2	22.2	22.3	22.4	22.4	22.1	21.7	21.9	22.0	21.8	21.9	22.1	22.3	22.4	22.4	22.5	22.5	22.5	22.6	22.5	21.7	22.6	22.2	24	
15	22.6	22.6	22.4	22.5	22.4	22.6	22.5	22.6	22.5	22.6	22.4	22.5	22.4	22.5	22.5	22.5	22.6	22.7	22.7	22.9	22.9	22.9	22.9	23.0	22.4	23.0	22.6	24	
16	23.0	23.1	23.1	23.1	23.2	23.4	23.5	23.6	23.4	23.2	23.1	22.5	22.7	22.9	23.0	23.1	23.2	23.4	23.4	23.4	23.5	23.5	23.3	23.4	22.5	23.6	23.2	24	
17	23.5	23.5	23.5	23.4	23.4	23.5	23.4	23.4	23.5	23.2	22.3	22.2	22.3	22.3	22.6	22.6	22.7	22.7	22.7	22.6	22.6	22.5	22.4	22.3	22.2	23.5	22.9	24	
18	22.3	22.4	22.2	22.2	22.3	22.2	22.2	22.3	22.4	22.4	22.5	22.4	22.4	22.3	22.4	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.6	22.2	22.6	22.4	24	
19	22.7	22.7	22.5	22.5	22.4	22.4	22.3	22.4	22.4	22.3	22.3	22.2	21.9	21.9	22.1	22.0	22.1	22.4	22.3	22.4	22.4	22.5	22.6	22.5	21.9	22.7	22.3	24	
20	22.4	22.5	22.5	22.5	22.4	22.4	22.2	22.4	22.5	22.5	22.2	21.8	21.9	21.9	22.0	22.0	21.9	21.9	21.8	22.1	22.3	22.2	22.3	22.3	21.8	22.5	22.2	24	
21	22.3	22.2	22.2	22.3	22.2	22.3	22.2	22.3	22.3	22.1	22.6	22.7	21.7	21.3	21.4	21.7	22.1	22.2	22.4	22.4	22.4	22.2	22.1	22.1	21.3	22.7	22.2	24	
22	22.2	22.2	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	21.7	21.7	22.0	22.1	22.0	22.2	22.2	22.5	22.4	22.3	22.3	22.2	22.3	22.4	21.7	22.5	22.2	24	
23	22.4	22.5	22.6	22.4	22.6	22.8	22.6	22.6	22.4	22.6	22.4	22.4	22.4	22.3	22.3	22.5	22.4	22.6	22.6	22.6	22.6	22.6	22.7	22.7	22.3	22.8	22.5	24	
24	22.7	22.6	22.6	22.6	22.6	22.5	22.4	22.5	22.5	22.5	22.4	22.4	22.3	22.2	22.2	22.5	22.6	22.6	22.5	22.6	22.7	22.8	22.9	23.1	22.2	23.1	22.6	24	
25	23.1	23.1	23.2	23.2	23.2	23.1	23.1	23.0	22.9	22.7	22.4	22.3	22.2	22.1	22.0	22.0	22.2	22.4	22.5	22.5	22.5	22.5	22.4	22.4	22.6	22.0	23.2	22.6	24
26	22.6	22.6	22.7	22.5	22.6	22.5	22.4	22.4	22.3	22.2	22.2	22.1	22.0	22.0	22.0	22.0	22.1	22.2	22.2	22.3	22.2	22.3	22.3	22.3	22.0	22.7	22.3	24	
27	22.4	22.4	22.3	22.3	22.3	22.6	22.5	22.7	22.7	22.5	22.1	22.2	22.2	22.3	22.2	22.2	22.3	22.3	22.4	22.3	22.2	22.3	22.2	22.3	22.1	22.7	22.3	24	
28	22.3	22.3	22.3	22.2	22.2	22.2	22.2	22.4	22.2	22.4	21.9	21.7	22.0	22.0	22.1	22.1	22.2	22.2	22.1	22.2	22.2	22.2	22.1	22.2	21.7	22.4	22.2	24	
29	22.2	22.2	22.2	22.1	22.3	22.2	22.3	22.3	22.2	22.2	22.2	22.2	22.1	22.1	22.2	22.1	22.2	22.3	22.2	22.2	22.3	22.3	22.2	22.2	22.1	22.3	22.2	24	
30	22.4	22.3	22.2	22.3	22.3	22.3	22.3	22.4	22.4	22.4	22.3	22.3	22.3	22.3	22.4	22.4	22.4	22.4	22.5	22.4	22.4	22.4	22.5	22.5	22.2	22.5	22.4	24	
HOURLY MAX	23.5	23.5	23.6	23.6	23.6	23.6	23.7	23.7	23.6	23.2	23.1	22.7	22.7	22.9	23.0	23.1	23.2	23.4	23.4	23.4	23.5	23.5	23.3	23.4					
HOURLY AVG	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.7	22.6	22.5	22.3	22.3	22.2	22.2	22.3	22.3	22.4	22.5	22.5	22.6	22.6	22.6	22.6	22.6					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HR AVERAGES November 2018



MONTHLY SUMMARY

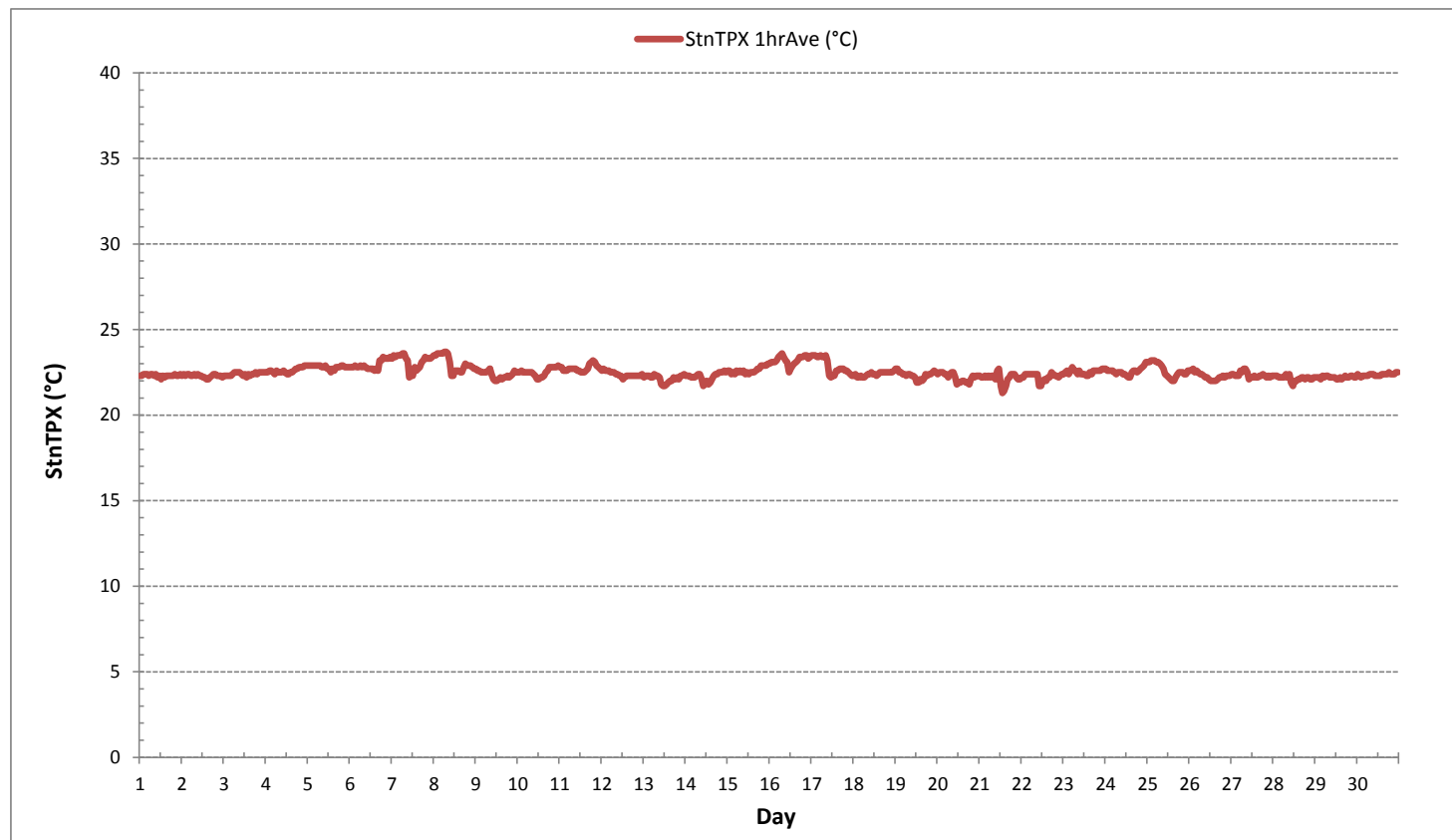
MINIMUM 1-HR AVERAGE:	21.3	°C	@ HOUR	13	ON DAY	21
MAXIMUM 1-HR AVERAGE:	23.7	°C	@ HOUR	6	ON DAY	8
MAXIMUM 24-HR AVERAGE:	23.2	°C			ON DAY	16

OPERATIONAL TIME: 720 hrs

AMD OPERATION UPTIME: 100.0 %

STANDARD DEVIATION: 0.4 MONTHLY AVERAGE: 22.5 °C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



Thermo 43i Sulphur Dioxide Analyzer Calibration

Date:	November 7, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	28.14	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires June 19, 2020	23.5	°C
Location/Station Name:	842B	Weather Conditions:	Mainly sunny		
Parameter:	Sulphur Dioxide	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	8:34	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	12:08	Cal Gas Expiry Date:	December 8, 2019		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a		
Analyzer:					
Serial Number/Owner:	835033373 Maxxam	Range ppb:	500		
Last Calibration Date:	October 11, 2018	As Found C.F.:	0.997		
Previous C.F.:	0.999	New C.F.:	0.999		

Calibration Standards:

Low Flow Meter ID/Expiry Date: N/A

High Flow Meter ID/Expiry Date: N/A

Calibrator ID/Expiry Date: Sabio id# 17200415 expires August 21, 2019

Cal Gas Cylinder I.D. #: EY0000769

Cal Gas Conc. (ppm): 50.5

Standard Calibration Points for Ranges	
Point	ppb
High	380
Mid	180
Low	90

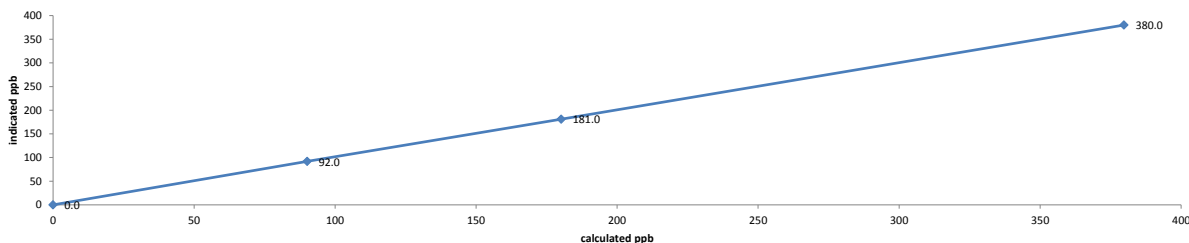
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	6000	0.00	6000	0.0	0.3	n/a
as found high	5953	45.10	5998	379.7	381	0.997
adjusted zero	6000	0.00	6000	0.0	0.0	n/a
adjusted high	5953	45.10	5998	379.7	380	0.999
mid	5977	21.40	5998	180.2	181	0.995
low	5987	10.70	5998	90.1	92	0.979
calibrator zero	6000	0.00	6000	0.0	0.3	n/a
Average C.F. =						0.991

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	1.001		0.95-1.05
b (Intercept as % of full scale) =	-0.18%		± 3% F.S.
% change in C.F. from last cal =	0.16%		± 10%

Thermo 43i Sulphur Dioxide Analyzer Calibration



As found:		As left:	
Bkg:	13.8	Bkg:	14.2
Coef:	1.009	Coef:	1.003
Pmt:	-621.6	Pmt:	-621.6
Flash:	893	Flash:	893
Internal:	28.2	Internal:	26.6
Chamber:	45.1	Chamber:	45.0
Perm Oven Gas:	45.00	Perm Oven Gas:	45.00
Perm Oven Heater:	44.09	Perm Oven Heater:	44.07
Pressure:	687.1 mmHg	Pressure:	687.1 mmHg
Sample Flow:	0.415 Lpm	Sample Flow:	0.414 Lpm
Lamp Intensity:	81%	Lamp Intensity:	81%
Averaging Time:	120	Averaging Time:	120
Expected Value:	255.6	Expected Value:	255.6

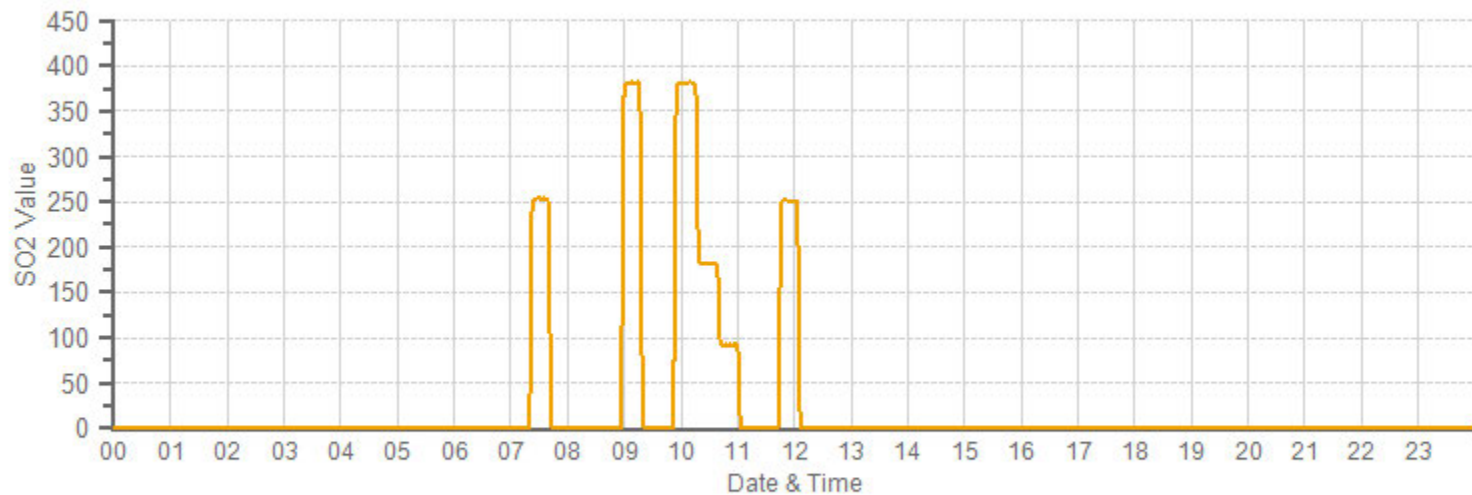
Comments:

The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

SO2[ppb] Station: PRAMP_842 Daily: 18/11/07 Type: AVG 1 Min. [1 Min.]



— SO2[ppb]

TOTAL REDUCED SULPHUR



Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

Date:	November 7, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	28.14	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires June 19, 2020	23.5	°C
Location/Station Name:	842B	Weather Conditions:	Mainly sunny		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	8:34	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	13:10	Cal Gas Expiry Date:	August 23, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD Nova CDN-101 #553		
Analyzer:					
Serial Number/Owner:	1162460023 Maxxam	Range ppb:	100		
Last Calibration Date:	October 11, 2018	As Found C.F.:	0.990		
Previous C.F.:	1.000	New C.F.:	1.000		

Calibration Standards:	Standard Calibration Points for Ranges	SO2 Scrubber Check (10 minutes):	
Low Flow Meter ID/Expiry Date:	Defender Low 152020 expires November 22, 2018	Start/End Time 24 hr.:	08:54/09:10
High Flow Meter ID/Expiry Date:	Defender High 148943 expires November 21, 2018	SO2 Analyzer Range:	500
Calibrator ID/Expiry Date:	Enviroconics id# 1991 expires March 15, 2019	Target Concentration (ppb):	380
Cal Gas Cylinder I.D. #:	LL119500	As Found Zero:	0.0
Cal Gas Conc. (ppm):	9.8	Analyzer Response (ppb):	0.2
		Zero Corrected Result (ppb):	0.2

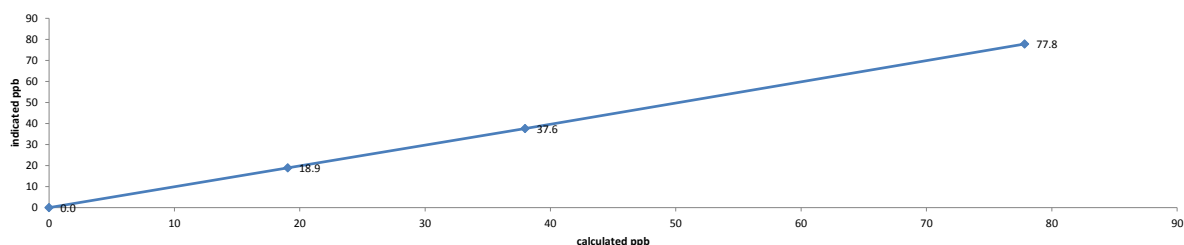
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	7468	0.00	7468	0.0	0.0	n/a
as found high	7401	59.72	7461	78.4	79.2	0.990
adjusted zero	7499	0.00	7499	0.0	0.0	n/a
adjusted high	7448	59.63	7508	77.8	77.8	1.000
mid	7469	29.06	7498	38.0	37.6	1.010
low	7479	14.56	7494	19.0	18.9	1.007
calibrator zero	7499	0.00	7499	0.0	0.1	n/a
Average C.F.:						1.006

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	1.000		0.95-1.05
b (Intercept as % of full scale)=	0.13%		± 3% F.S.
% change in C.F. from last cal=	0.96%		± 10%

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

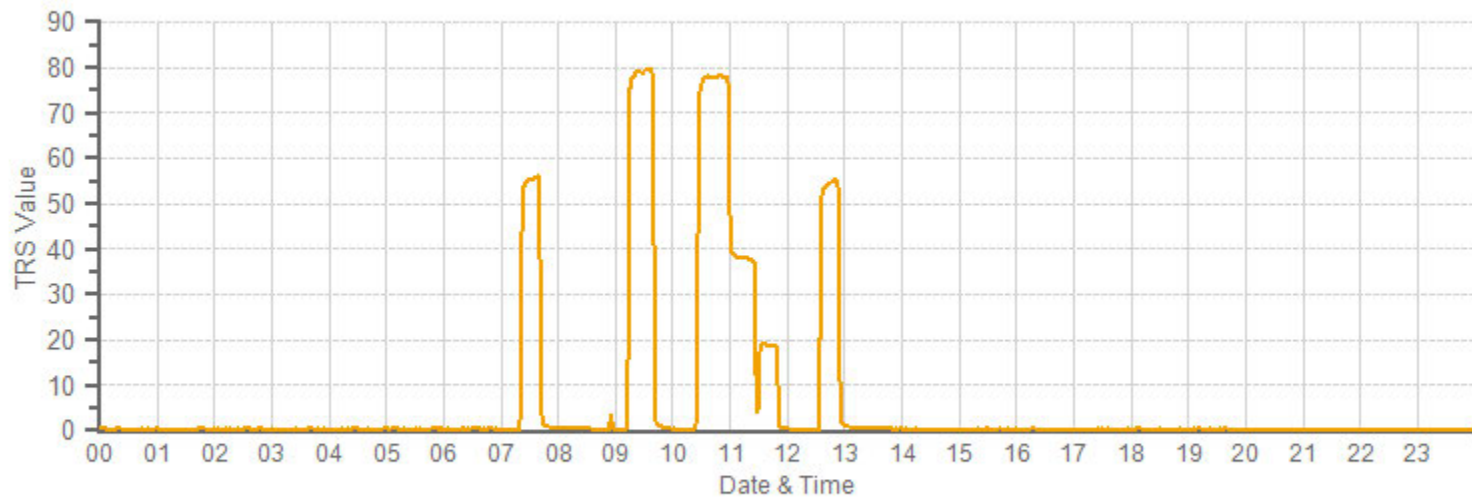


As found:		As left:	
Bkg:	2.85	Bkg:	2.88
Coef:	0.888	Coef:	0.876
Pmt:	-720.8	Pmt:	-720.4
Flash:	984	Flash:	986
Internal:	32.8	Internal:	31.6
Chamber:	45.0	Chamber:	4.2
Perm Oven Gas:	45.00	Perm Oven Gas:	45.00
Perm Oven Heater:	44.13	Perm Oven Heater:	44.11
Pressure:	674.1	Pressure:	678.5
Sample Flow:	0.408	Sample Flow:	0.413
Lamp Intensity:	88	Lamp Intensity:	88
Converter:	850	Converter:	850
Converter Set:	850	Converter Set:	850
Averaging Time:	120	Averaging Time:	120
Expected Value:	58.0	Expected Value:	58.0

Comments:

The analyzer sample inlet filter was changed.
The analyzer cooling fan filter(s) were cleaned.
The manifold blower was found to be working normally.

TRS[ppb] Station: PRAMP_842 Daily: 18/11/07 Type: AVG 1 Min. [1 Min.]



— TRS[ppb]

TOTAL HYDROCARBON

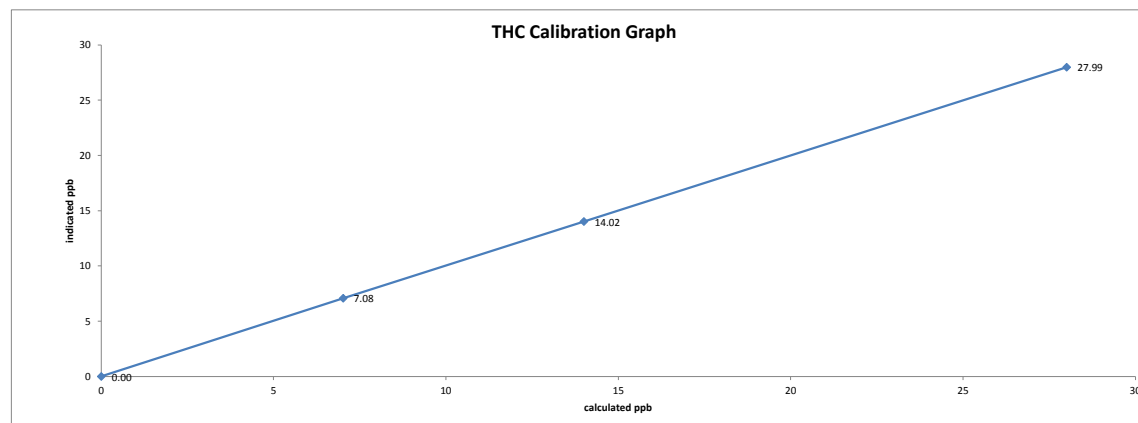
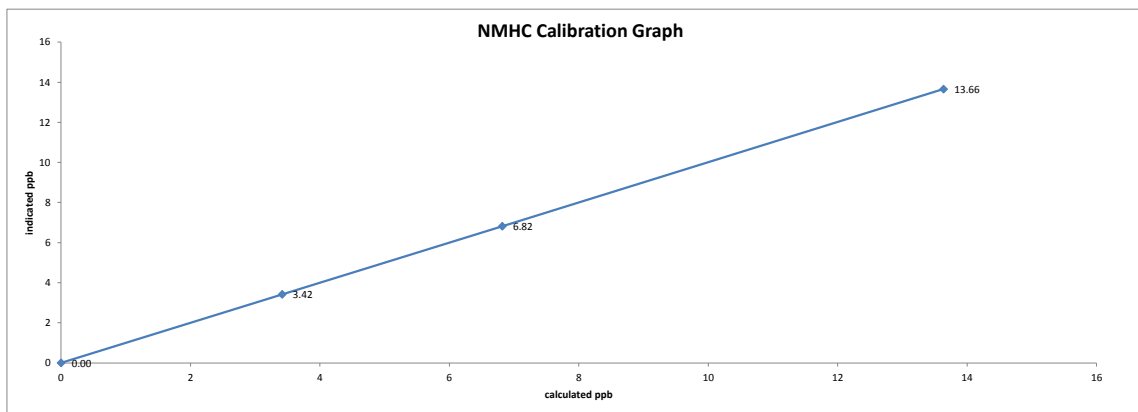
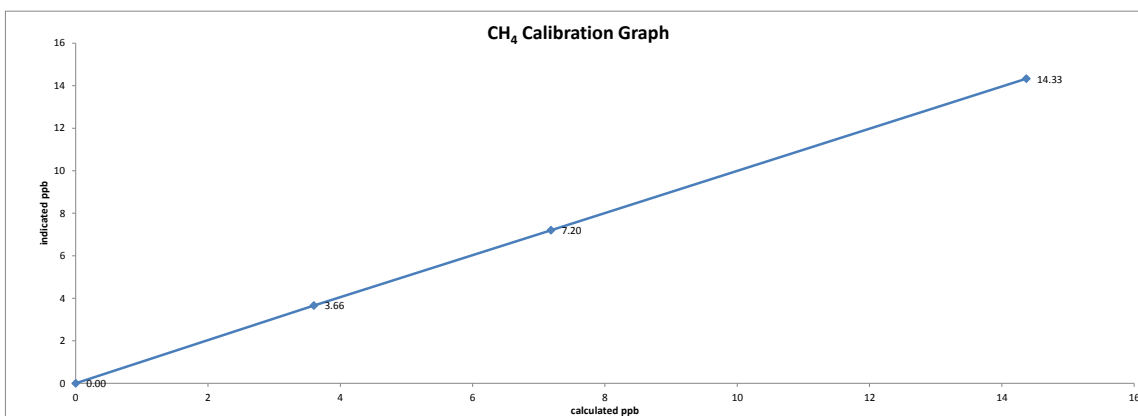


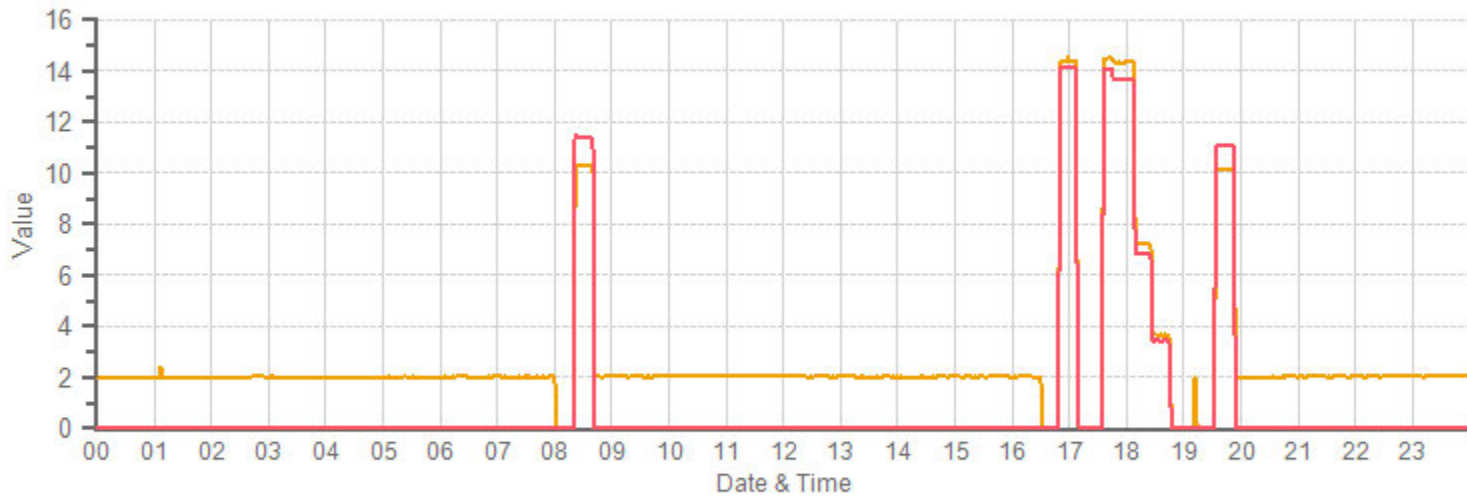
Thermo 55i Methane/Non-Methane Analyzer Calibration

Date: November 6, 2018		Barometer/B.P./units: Brunton 05535 expires December 15, 2018		28.19	inHg																
Company/Airshed: PRAMP		Thermometer/Station Temp: F.S. 160348895 expires June 19, 2020		22.8	°C																
Location/Station Name: 842B		Weather Conditions: Mainly sunny																			
Parameter: CH ₄ / NMHC / THC		Calibration Purpose: routine monthly																			
Start/End Time 24 hr. (mst): 16:29/19:56		Performed By/Reviewer: LIMIN LI		Rob Fisher																	
Calibration Method: Gas Dilution		Cal Gas Expiry Date: October 18, 2025																			
Analyzer:																					
Serial Number/Owner: 1433563261 Maxxam		Correction Factors:																			
Measured Flow: 1074 sccm		Previous C.F.:		As Found C.F.:																	
Last Calibration Date: October 31, 2018		CH ₄ = 1.001		1.003																	
Range ppm: 20 CH ₄ /20 NMHC/40 THC		NMHC = 0.999		0.968																	
		THC = 1.000		0.986																	
				1.001																	
Calibration Standards:																					
Low Flow Meter ID/Expiry Date: N/A		Standard Calibration Points for Analyzer Range of 20/20/40 ppm																			
High Flow Meter ID/Expiry Date: N/A		<table border="1"><thead><tr><th>Point</th><th>CH₄</th><th>NMHC</th><th>THC</th></tr></thead><tbody><tr><td>High</td><td>13.00</td><td>13.00</td><td>26.00</td></tr><tr><td>Mid</td><td>7.00</td><td>7.00</td><td>14.00</td></tr><tr><td>Low</td><td>3.00</td><td>3.00</td><td>6.00</td></tr></tbody></table>				Point	CH ₄	NMHC	THC	High	13.00	13.00	26.00	Mid	7.00	7.00	14.00	Low	3.00	3.00	6.00
Point	CH ₄	NMHC	THC																		
High	13.00	13.00	26.00																		
Mid	7.00	7.00	14.00																		
Low	3.00	3.00	6.00																		
Calibrator ID/Expiry Date: Sabio id# 17200415 expires August 21, 2019																					
Cal Gas Cylinder I.D. #: LL168404																					
CH₄ Cylinder Conc.: 597.0 206.0 =C ₃ H ₈ Cylinder Conc.																					
CH₄ expressed as C₃H₈: 566.5 1163.5 =total CH ₄ equivalent																					
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015																					
Calibrator Flow Rates (cc/min)																					
Point	Diluent	Cal Gas	Total Flow	Calculated CH ₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH ₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:											
as found zero	3500	0.00	3500	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a									
as found high	3415	84.20	3499	14.37	13.63	28.00	14.33	14.08	28.41	1.003	0.968	0.986									
adjusted zero	3500	0.00	3500	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a									
adjusted high	3414	84.20	3498	14.37	13.64	28.01	14.33	13.66	27.99	1.003	0.998	1.001									
mid	3456	42.10	3498	7.19	6.82	14.00	7.20	6.82	14.02	0.998	1.000	0.999									
low	3477	21.10	3498	3.60	3.42	7.02	3.66	3.42	7.08	0.984	0.999	0.991									
calibrator zero	3500	0.00	3500	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a									
Average C.F. =										0.995	0.999	0.997									
Linear Regression/Calibration Results:						LIMITS															
Correlation Coefficient =						CH ₄	NMHC	THC													
Slope =						1.000	1.000	1.000	> or = 0.995												
b (Intercept as % of full scale) =						0.996	1.002	0.999	0.95-1.05												
% change in C.F. from last cal =						0.17%	-0.02%	0.08%	± 3% F.S.												
						-0.15%	3.08%	1.45%	± 10%												
As Left Instrument Diagnostics:																					
Interface Board Voltages:		Bias Supply: -300.0		Calibration History cnt'd:		NM Peak Area: 87438															
Temperatures:		Detector Oven: 175		Crucial Settings:		Methane Start: 8															
		Filter: 175				Methane End: 16															
		Column Oven: 75.0				Backflush: 18															
		Internal: 32.5				NMHV Start: 26															
Cylinder Pressures/reg.:		Carrier: 1550 50		Run History>1:		NMHC End: 56															
		Fuel: 1250 50				Date: 06NOV18															
		Span Gas: 900 24				Time: 16:24															
		Zero Air Generator: 50				CH₄ PK HT: 2659															
Internal Pressures:		Carrier: 31.7				CH₄ RT: 13.4															
		Fuel: 37.6				CH₄ Baseline: 2075															
		Air: 34.2				CH₄ LOD: 127															
FID Status:		Status: LIT				CH₄ SD: 42															
		Counts: 22590				CH₄ CONC: 2.00															
		Flame: 359.4				NM PK HT: 0															
		Det Base: 175				NM Peak Area: 0															
Flame and Power Stats:		Last Power On: 31OCT18 11:34				NM CONC: 0.00															
		Flameouts: 5				NM Base Start: 1875															
		Det Oven at Start: 126.8				NM Base End: 1876															
		Col Oven at Start: 65.3				NM LOD: 16															
Calibration History:		Time: 31OCT18 14:22				NM Start IDX: 23															
		Type: SPAN				NM End IDX: 92															
		Status: GOOD				NM Max Slope: 6.0e-01															
		Check/Adjust: ADJUST				NM Min Slope: -4.7e-01															
		CH₄ Span Conc: 14.37				NM PT Count: 0															
		CH₄ SP Ratio: 0.000752				Previous CH₄: 10.11															
		CH₄ RT: 13.4		Expected Values:		Previous NMHC: 11.17															
		CH₄ PK IDX: 27				Previous THC: 21.28															
		CH₄ PK HT: 19114				New CH₄: 10.11															
		NM Span Conc: 13.64				New NMHC: 11.17															
		NM SP Ratio: 0.000156				New THC: 21.28															
Comments:																					
The analyzer sample inlet filter was changed.																					
The analyzer cooling fan filter(s) were cleaned.																					
The manifold blower was found to be working normally.																					

Date: November 6, 2018
Company/Airshed: PRAMP
Location/Station Name: 842B

Start/End Time 24 hr. (mst): 16:29/19:56
Calibration Purpose: routine monthly
Calibration Method: Gas Dilution





— CH4[ppm] — NMHC[ppm]



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date: November 21, 2018		Barometer/B.P./units: Brunton 05490 expires December 11, 2018		930	millibars
Company/Airshed: PRAMP		Thermometer/Station Temp: F.S. 160459244 expires June 19, 2020		22	°C
Location/Station Name: 842b		Weather Conditions: Cloudy/Overcast			
Parameter: CH4 / NMHC / THC		Calibration Purpose: Installation			
Start/End Time 24 hr. (mst): 09:36 / 11:57		Performed By/Reviewer: Chris Wesson		Rob Fisher	
Calibration Method: Gas Dilution		Cal Gas Expiry Date: October 18, 2025			

Analyzer:		Correction Factors:			
Serial Number/Owner: 1505664392	Maxxam	Previous C.F.:	As Found C.F.:	New C.F.:	
Measured Flow: 1.1 L/min		CH ₄ =	n/a	n/a	1.000
Last Calibration Date: n/a		NMHC =	n/a	n/a	1.002
Range ppm: 20 CH4/20 NMHC/40 THC		THC =	n/a	n/a	1.001

Calibration Standards:		Standard Calibration Points for Analyzer Range of 20/20/40 ppm			
Low Flow Meter ID/Expiry Date: N/A		Point	CH4	NMHC	THC
High Flow Meter ID/Expiry Date: N/A		High	13.00	13.00	26.00
Calibrator ID/Expiry Date: Sabio id# 17100415 expires August 21, 2019		Mid	7.00	7.00	14.00
Cal Gas Cylinder I.D. #: LL107207		Low	3.00	3.00	6.00
CH4 Cylinder Conc.: 600.0	207.0 =C ₃ H ₈ Cylinder Conc.				
CH₄ expressed as C₃H₈: 569.3	1169.3 =total CH4 equivalent				

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015												
Calibrator Flow Rates (cc/min)				Calculated CH₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:		
Point	Diluent	Cal Gas	Total Flow							CH₄	NMHC	THC
adjusted zero	2999	0.00	2999	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2924	73.40	2997	14.69	13.94	28.64	14.69	13.92	28.61	1.000	1.002	1.001
mid	2963	36.80	3000	7.36	6.98	14.34	7.36	7.03	14.40	1.000	0.993	0.996
low	2981	18.50	2999	3.70	3.51	7.21	3.71	3.62	7.33	0.998	0.970	0.984
calibrator zero	2999	0.00	2999	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
Average C.F. =										0.999	0.988	0.994

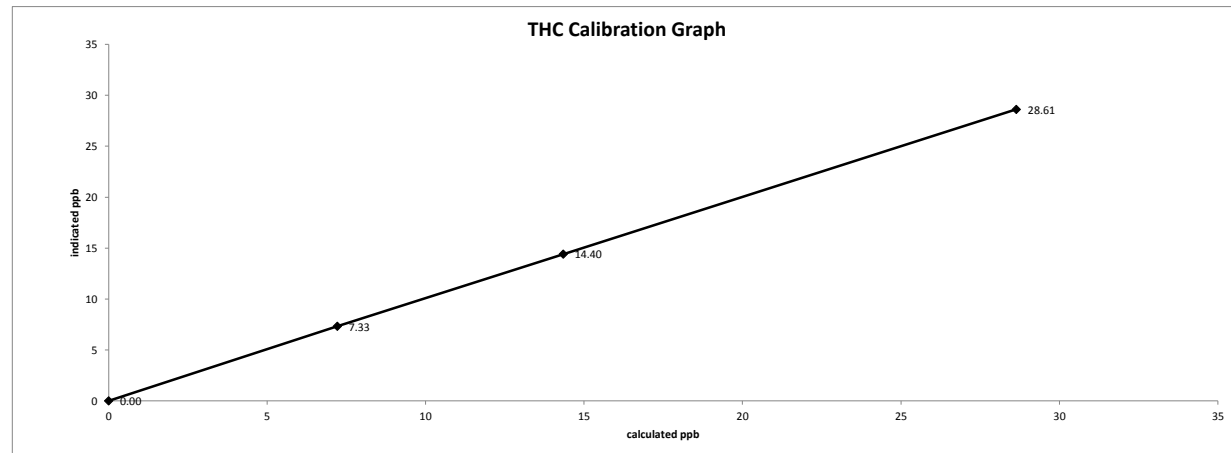
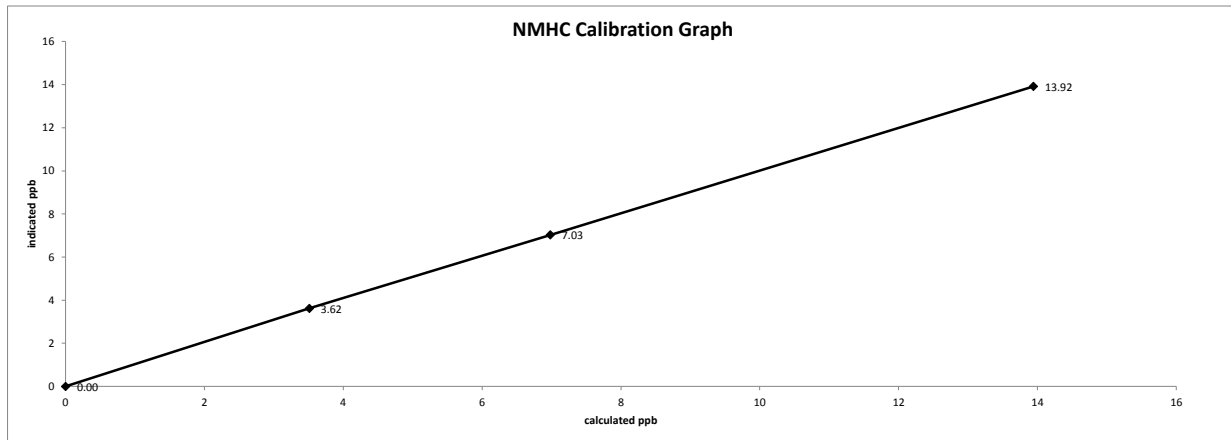
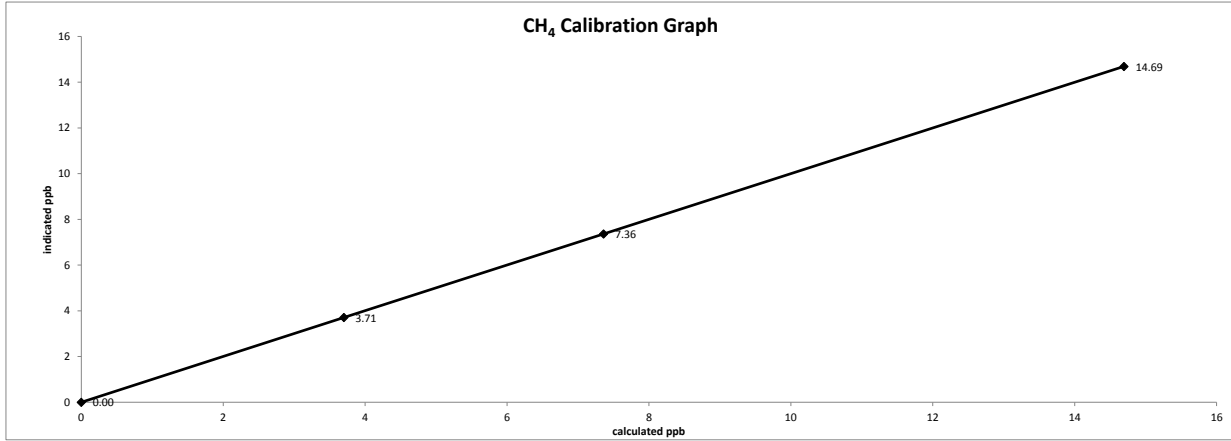
Linear Regression/Calibration Results:				LIMITS	
Correlation Coefficient =	CH₄	NMHC	THC	> or = 0.995	
Slope =	1.000	1.000	1.000	0.95-1.05	
b (Intercept as % of full scale) =	0.999	0.996	0.998	± 3% F.S.	
% change in C.F. from last cal =	0.02%	0.29%	0.16%		
	n/a	n/a	n/a	n/a	

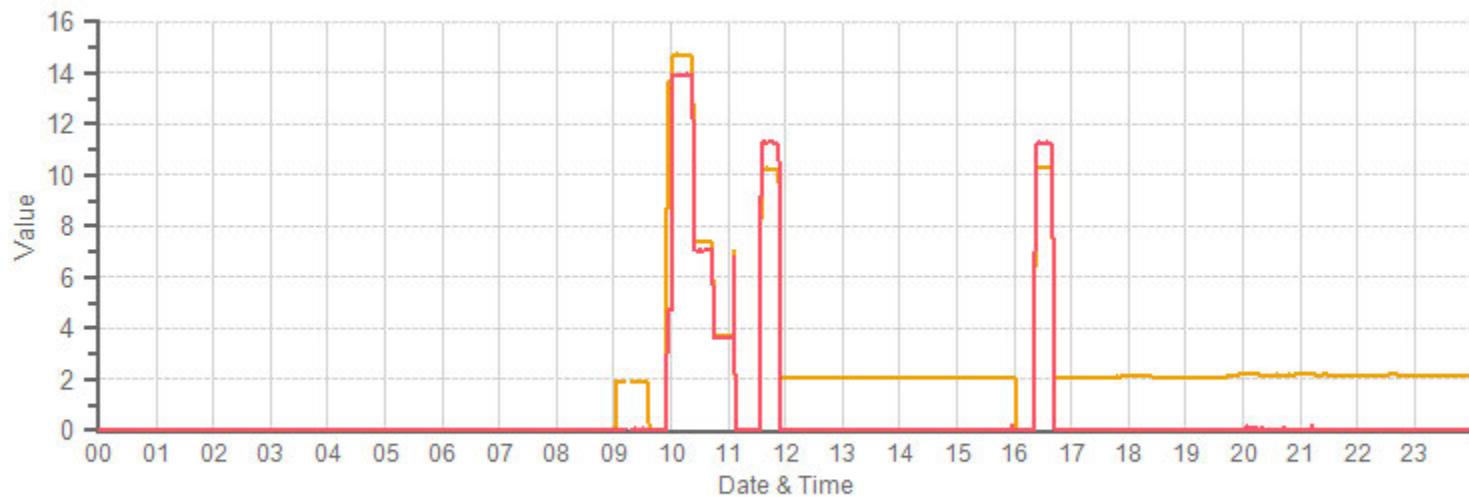
As Left Instrument Diagnostics:											
Interface Board Voltages:	Bias Supply:	-294.5	Calibration History cnt'd:	NM Peak Area:	79260						
Temperatures:	Detector Oven:	175.0	Crucial Settings:	Methane Start:	8.0						
	Filter:	175.1		Methane End:	16.0						
	Column Oven:	75.0		Backflush:	18.0						
	Internal:	33.0		NMNV Start:	25.0						
Cylinder Pressures/reg.:	Carrier:	1200 50		NMHC End:	54.0						
	Fuel:	700 50	Run History>1:	Date:	21Nov2018						
	Span Gas:	900 16		Time:	11:05						
	Zero Air Generator:	50		CH₄ PK HT:	0						
Internal Pressures:	Carrier:	31.1		CH₄ RT:	11.4						
	Fuel:	47.4		CH₄ Baseline:	3171						
	Air:	23.7		CH₄ LOD:	54						
FID Status:	Status:	LIT		CH₄ SD:	18						
	Counts:	36283		CH₄ CONC:	0.00						
	Flame:	380.4		NM PK HT:	0						
	Det Base:	175.0		NM Peak Area:	0						
Flame and Power Stats:	Last Power On:	20Nov2018@18:11		NM CONC:	0.00						
	Flameouts:	1		NM Base Start:	3169						
	Det Oven at Start:	1210.5		NM Base End:	3238						
	Col Oven at Start:	74.1		NM LOD:	20						
Calibration History:	Time:	21Nov2018@09:48		NM Start IDX:	12						
	Type:	SPAN		NM End IDX:	88						
	Status:	GOOD		NM Max Slope:	2.1e+00						
	Check/Adjust:	ADJUST		NM Min Slope:	-3.5e-01						
	CH₄ Span Conc:	14.69	Expected Values:	NM PT Count:	0						
	CH₄ SP Ratio:	0.000724		Previous CH4:	10.11						
	CH₄ RT:	12.2		Previous NMHC:	11.17						
	CH₄ PK IDX:	21		Previous THC:	21.28						
	CH₄ PK HT:	20285		New CH4:	10.23						
	NM Span Conc:	13.94		New NMHC:	11.23						
	NM SP Ratio:	0.000176		New THC:	21.28						

Comments:	
The analyzer # 1505664392 was installed to replace Analyzer #1433563261 due to faulty injections. Erroneous concentration at 11:06.	

Date: November 21, 2018
Company/Airshed: PRAMP
Location/Station Name: 842b

Start/End Time 24 hr. (mst): 09:36 / 11:57
Calibration Purpose: installation
Calibration Method: Gas Dilution





— CH4[ppm] — NMHC[ppm]

WIND SYSTEM



Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	Performed By:	Chris Wesson
Audit Location:	842b	Reviewed By:	Rob Fisher
Audit Date:	August 22, 2018	Start/End Time (mst):	17:50 / 18:21
Calibration Purpose:	routine annual	Weather Conditions:	Smoke

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0 - 1 V
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200 KPH
Serial #:	124638	Direction Voltage Output Range:	0 - 1 V
Previous Cal/Audit Date:	August 30, 2017	Direction Unit Output Range:	0-360 °

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA03309 expires September 25, 2018

Wind Speed Audit Data

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.4	0.4	-
1000	18.4	18.4	18.4	1.002
2000	36.9	36.8	36.8	1.002
3000	55.3	55.2	55.2	1.002
4000	73.7	73.6	73.6	1.002
5000	92.2	91.8	91.9	1.003
6000	110.6	110.2	110.2	1.003
7000	129.0	128.8	128.8	1.002
8000	147.4	147.2	147.2	1.002
9000	165.9	165.6	165.6	1.002
10000	184.3	184.5	184.2	1.000
The audit meets AMD requirements.			Average Correction Factor=	1.002

Wind Direction Audit Data

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	1	355	1.0	0.0	0.5
30	330	30	330	0.0	0.0	0.0
60	300	60	300	0.0	0.0	0.0
90	270	91	270	-1.0	0.0	0.5
120	240	120	240	0.0	0.0	0.0
150	210	151	211	-1.0	-1.0	1.0
180	180	180	181	0.0	-1.0	0.5
210	150	210	151	0.0	-1.0	0.5
240	120	240	121	0.0	-1.0	0.5
270	90	270	90	0.0	0.0	0.0
300	60	300	60	0.0	0.0	0.0
330	30	330	30	0.0	0.0	0.0
355	0	355	1	0.0	1.0	0.5
The audit meets AMD requirements.			Average Absolute Degrees Difference=		0.3	

Comments:

METEOROLOGICAL SYSTEMS CHECK



Meteorological System Checklist

Date:	November 7, 2018		
Technician:	Limin Li		
Reviewer:	Rob Fisher		
Station:	PRAMP 842B		
Unit:	Make:	Model:	Serial #:
Temperature Sensor:	Campbell Scientific	HMP45C	C2608
Barometric Pressure Sensor:	MetOne	92	K12864
Relative Humidity Sensor:	Campbell Scientific	HMP45C	C2608
Anemometer:	RM Young	05305VK	124638
AMBIENT TEMPERATURE SENSOR CHECK			
Previous check date:	October 11, 2018		
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	F.S. 160348895 expires June 19, 2020		
Reference Temperature (°C):	-20.8		
Station - Ambient Temperature (°C):	-19.2		
Temperature Difference (°C):	-1.6		
BAROMETRIC PRESSURE SENSOR CHECK			
Previous check date:	October 11, 2018		
Reference Barometer ID:	Brunton 05535 expires December 15, 2018		
Reference Pressure - Units/Reading:	inHg	28.24	
Station Pressure - Units/Reading:	inHg	28.15	
Pressure Tolerance +/- 15% of error:	24 - 32	0.32%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Previous check date:	October 11, 2018		
Reference Hygrometer ID:	F.S. id# 160348895 expires June 19, 2020		
Reference Hygrometer % RH- Reading:	81.10		
Station Hygrometer % RH- Reading:	83.40		
RH Tolerance +/- 15% of difference:	68.94 - 93.27	-2.8%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	October 11, 2018	Previous check date:	October 11, 2018
Wind Speed Observed (kph):	0 ~ 10	Wind Direction Observed:	S
Wind speed on Data Logger (kph):	4.8	Wind Direction on Data Logger:	S
		Wind Direction Pass/Fail?:	Pass

CALIBRATORS

Company Maxxam		Operator: Mike	
Calibrator:		Flow Measurement Device:	
Make/Model	Sabio	Make/Model	Bios Definer 220
Serial Number	17200415	Serial Number	H=128686; L=129069
Last Verification Date	May 16, 2017	Temperature (°C)	22.2 C
NO Cylinder S/N	LL104183	Barometric Pressure	706.1mmHg
NO [PPM]	50.8 NOx [PPM] 50.9		
Expiry Date	October 24, 2020		

Dilution Flow (scm)			
Pt. #1 5057	Pt. #2 5055	Pt. #3 5070	
Gas Flow (scm)			
Pt. #1 77.4	Pt. #2 37.9	Pt. #3 19.1	

Calibrator Flow (scm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
5102	0.0	0.0000	0.0000	0.0001	-0.0002	-0.0001	Limit ± 10%	
5057	77.4	0.7775	0.7779	0.7973	0.0012	0.7985	3%	3%
5055	37.9	0.3809	0.3816	0.3896	0.0000	0.3896	2%	2%
5070	19.1	0.1914	0.1918	0.1962	0.0000	0.1962	2%	2%
Absolute Average Percent Difference							2%	2%

LINEAR REGRESSION ANALYSIS				$y=mx+b$ (where x=calculated concentration, y=indicated concentration)			
NO		LIMITS		NOx			
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000		
m (Slope)=	1.0253	0.90-1.10		m (Slope)=	1.0266		
b (Intercept % of FS)=	-0.0176	± 3% F.S.		b (Intercept % of FS)=	-0.0763		

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
5057	0.0	0.0000	0.7868	0.0006	0.7874	NO ₂	% Diff. Limit
5057	500.0	0.5003	0.2865	0.5016	0.7875	0%	± 10%
5057	275.0	0.2802	0.5066	0.2797	0.7862	0%	± 10%
5057	100.0	0.1053	0.6815	0.1046	0.7863	-1%	± 10%
Absolute Average Percent Difference						0%	± 10%

LINEAR REGRESSION ANALYSIS				$y=mx+b$ (where x=calculated concentration, y=indicated concentration)			
NO₂		LIMITS					
Correlation=	1.0000	≥ 0.995					
m (Slope)=	1.0020	0.90-1.10					
b (Intercept % of FS)=	-0.0259	± 3% F.S.					

AENV Standards		NO_x Analyzer	
Audit Calibrator			
Make/Model	Thermo 146i	Make/Model	Thermo 42i
Serial/AMU Number	1809	Serial/AMU Number	1868
SRM Gas Cylinder No.	APEX1170572	Last Calibration Date	August 16, 2018
Cylinder Conc. (ppm)	49.99	Full Scale (ppm)	1.0
		Cylinder Gas Expiry Date	November 15, 2020

COMMENTS:

Auditor: Shea Beaton

Operator Signature:

Date: August 21, 2018

Location: McIntyre Center Edmonton

Company: Maxxam Operator: Chris W

Calibrator:				Flow Measurement Device:			
Make/Model	<u>Envionics 2000</u>			Make/Model	<u>Mesa Defender 530</u>		
Serial Number	<u>1991</u>			Serial Number	<u>L-153351 H-152571</u>		
Last Verification Date	<u>March 2017</u>			Temperature (°C)	<u>25.0 C</u>		
NO Cylinder S/N	<u>LL108015</u>			Barometric Pressure	<u>695 mmHg</u>		
NO [PPM]	<u>52.2</u>	NOx [PPM]	<u>52.3</u>				
Expiry Date	<u>Oct 2020</u>						

Dilution Flow (sccm)			
Pt. #1	<u>5000</u>	Pt. #2	<u>5000</u>
Gas Flow (sccm)			
Pt. #1	<u>80</u>	Pt. #2	<u>40</u>
Pt. #3	<u>20</u>		

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4988	75.1	0.786	0.787	0.785	-0.002	0.783	0%	-1%
4988	36.5	0.382	0.383	0.382	0.001	0.383	0%	0%
4988	18.3	0.192	0.192	0.190	0.000	0.190	-1%	-1%
Absolute Average Percent Difference							0%	1%

LINEAR REGRESSION ANALYSIS

$y=mx+b$ (where x=calculated concentration, y=indicated concentration)

NO		LIMITS		NOx	
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000
m (Slope)=	0.9996	0.90-1.10		m (Slope)=	0.9956
b (Intercept % of FS)=	-0.0599	± 3% F.S.		b (Intercept % of FS)=	-0.0005

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4988	0.000	0.000	0.788	-0.001	0.787	NO ₂	% Diff. Limit
4988	0.350	0.519	0.269	0.512	0.780	-1%	± 10%
4988	0.160	0.231	0.557	0.229	0.786	0%	± 10%
4988	0.070	0.099	0.689	0.097	0.787	-1%	± 10%
Absolute Average Percent Difference						1%	± 10%

LINEAR REGRESSION ANALYSIS

$y=mx+b$ (where x=calculated concentration, y=indicated concentration)

NO₂		LIMITS	
Correlation=	1.0000	≥ 0.995	
m (Slope)=	0.9885	0.90-1.10	
b (Intercept % of FS)=	-0.0567	± 3% F.S.	

AENV Standards		NO_x Analyzer	
Audit Calibrator		Make/Model <u>Teco 42i</u>	
Make/Model	<u>Teco 146i</u>	Serial/AMU Number	<u>AMU 1868</u>
Serial/AMU Number	<u>AMU 1809</u>	Last Calibration Date	<u>March 14, 2018</u>
SRM Gas Cylinder No.	<u>APEX1170572</u>	Full Scale (ppm)	<u>1.0</u>
Cylinder Conc. (ppm)	<u>49.99</u>	Cylinder Gas Expiry Date	<u>November 2020</u>

COMMENTS: Cylinder contains 47.9 ppm SO₂.

Auditor: Al Clark
Operator Signature: [Signature]

Date: March 15, 2018
Location: McIntyre Center Edmonton

Company Maxxam

Operator: Mike

Calibrator: Make/Model <u>Sabio</u> Serial Number <u>17100415</u> Last Verification Date <u>May 16, 2017</u> NO Cylinder S/N <u>LL104183</u> NO [PPM] <u>50.8</u> NOx [PPM] <u>50.9</u> Expiry Date <u>October 24, 2020</u>	Flow Measurement Device: Make/Model <u>Bios Definer 220</u> Serial Number <u>H=128686; L=129069</u> Temperature (°C) <u>22.2 C</u> Barometric Pressure <u>706.1mmHg</u>
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Dilution Flow (sccm)		
Pt. #1 <u>5120</u>	Pt. #2 <u>5121</u>	Pt. #3 <u>5128</u>
Gas Flow (sccm)		
Pt. #1 <u>77.4</u>	Pt. #2 <u>37.8</u>	Pt. #3 <u>19</u>

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
5136	0.0	0.0000	0.0000	0.0001	-0.0002	0.0001	Limit ± 10%	
5120	77.4	0.7680	0.7695	0.7793	0.0003	0.7796	1%	1%
5121	37.8	0.3750	0.3757	0.3802	0.0000	0.3802	1%	1%
5128	19.0	0.1882	0.1885	0.1908	0.0005	0.1909	1%	1%
Absolute Average Percent Difference							1%	1%

LINEAR REGRESSION ANALYSIS

 $y=mx+b$ (where x=calculated concentration, y=indicated concentration)

<u>NO</u>		<u>LIMITS</u>	<u>NOx</u>	
Correlation=	1.0000	≥ 0.990	Correlation=	1.0000
m (Slope)=	1.0146	0.90-1.10	m (Slope)=	1.0130
b (Intercept % of FS)=	-0.0074	± 3% F.S.	b (Intercept % of FS)=	-0.0059

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
5120	0.0	0.0000	0.7794	0.0005	0.7799	NO ₂	% Diff. Limit
5120	500.0	0.4827	0.2967	0.4854	0.7806	0%	± 10%
5120	275.0	0.2672	0.5122	0.2676	0.7798	0%	± 10%
5120	90.0	0.0896	0.6898	0.0890	0.7787	-1%	± 10%
Absolute Average Percent Difference						0%	± 10%

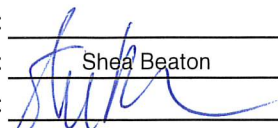
LINEAR REGRESSION ANALYSIS

 $y=mx+b$ (where x=calculated concentration, y=indicated concentration)

<u>NO₂</u>		<u>LIMITS</u>
Correlation=	1.0000	≥ 0.995
m (Slope)=	1.0053	0.90-1.10
b (Intercept % of FS)=	-0.0370	± 3% F.S.

AENV Standards Audit Calibrator Make/Model <u>Thermo 146i</u> Serial/AMU Number <u>1809</u> SRM Gas Cylinder No. <u>APEX1170572</u> Cylinder Conc. (ppm) <u>49.99</u>	NO_x Analyzer Make/Model <u>Thermo 42i</u> Serial/AMU Number <u>1868</u> Last Calibration Date <u>August 16, 2018</u> Full Scale (ppm) <u>1.0</u> Cylinder Gas Expiry Date <u>November 15, 2020</u>
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COMMENTS:

Auditor: Shea Beaton
Operator Signature: 

Date: August 21, 2018
Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2016-436CGA

Company: Maxxam **Operator's Name:** Chris

Cylinder #: EY0000769 Concentration PPM: 50.5 Tolerance(%) 1.6 Certified By: Praxair

Expiry Date: December 8, 2019

Reference Calibrator and Gas:

Make/Model: Thermo 146i
Serial Number: AMU 1809
Last Verification Date: January 26, 2017
Gas Type: SO2 Conc. 98.07
Cylinder Number: CAL016625
Expiry Date: January 5, 2019

Flow Measurement Device:

Make/Model: Bios Befiner 220
Serial Number: AMU1941
Temp. °C: 24.4
B.P. 704.7

Reference Analyzer:

Make/Model: Themro 43C Serial/AMU Number: AMU 1623

Instrument Settings: Zero: 9.5 Span: 1.023 Range: 1.0

Last Calibration: Date: 25-Jan-17 C.F. 1.000 Done By: SB

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
4911	0.0	0.000			
4918	77.4	0.801	0.01574	63.540	50.9
4918	38.5	0.398	0.00783	127.740	50.9
4915	19.2	0.196	0.00391	255.990	50.0
Average Cylinder Concentration:					50.6

Previous Stated Concentration PPM: 50.5

Percent variance from Stated: 0.2

Meets Manufacturer Tolerance. Use manufacturers stated concentration ☒ **COMMENTS:** _____

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration ☐ _____

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder ☐ _____

Auditor: Shea Beaton

Operator Signature: _____

Date: January 26, 2017

Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-213CGA

Company: Maxxam **Operator's Name:** C. Wesson
Cylinder #: LL119500 **Concentration PPM:** 9.8 **Tolerance(%)** 2 **Certified By:** Praxair
Expiry Date: August 2020

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: September 22, 2017
Gas Type: H2S **Conc.** 20.43
Cylinder Number: CAL015272
Expiry Date: January 2019

Flow Measurement Device:

Make/Model: Mesa Definer 220
Serial Number: H-133034 L-132702
Temp. °C: 23.5 C
B.P. 705 mmhg

Reference Analyzer:

Make/Model: Teco 450i **Serial/AMU Number:** 1980
Instrument Settings: **Zero:** 22.4 **Span:** 1.091 **Range:** 0.1
Last Calibration: **Date:** Sep 22/17 **C.F.** 1.000 **Done By:** Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000			
5114	39.5	0.0734	0.00772	129.468	9.5
5096	18.5	0.0345	0.00363	275.459	9.5
5089	9.5	0.0178	0.00187	535.684	9.5
Average Cylinder Concentration:					9.5

Previous Stated Concentration PPM: 9.8

Percent variance from Stated: 3

Meets Manufacturer Tolerance. Use manufacturers stated concentration ☐ **COMMENTS:** _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration ☒ _____
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder ☐ _____

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: September 22, 2017
Location: McIntyre Center Edmonton



Calibration Gas Audit

CH₄ / C₃H₈ Cylinder Gas

File No. 2017-488CGA

Company: Maxxam **Operators name:** Mike
Cylinder #: LL168404 **Conc CH₄ (PPM)** 597/206 **Tolerance (%)** 2 **Certified By:** Praxair
Expiry Date: October 2025

Reference Calibrator and Gas:				Flow Measurement Device:	
Make/Model	<u>R&R MFC 201</u>			Make/Model	<u>Mesa Definer 220</u>
Serial Number	<u>AMU 1690</u>			Serial Number	<u>H-133034 / L-132702</u>
Last Verification Date	<u>December 13, 2017</u>			Temp. °C	<u>23.1 C</u>
Gas Type	<u>CH₄</u>	Conc.	<u>990.4</u>	B.P.	<u>707 mmHg</u>
Cylinder Number	<u>5604875</u>	Expiry Date	<u>July 2021</u>		
Gas Type	<u>C₃H₈</u>	Conc.	<u>246.5</u>		
Cylinder Number	<u>XF003845B</u>	Expiry Date	<u>July 2022</u>		

Reference Analyzer:
Make/Model Teco 55i **Serial/AMU Number:** 2108
Instrument Settings **Zero:** N/A **Span:** N/A **Range:** 20.0
Last Calibration: **Date:** Dec 12/17 **C.F.** 1.000 **Done By:** Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH ₄	C ₃ H ₈			CH ₄	C ₃ H ₈
3500	0.0	0.00	0.00				
3618	80.4	13.22	12.69	0.02	45.00	595	208
3547	39.8	6.64	6.42	0.01	89.12	592	208
3560	19.8	3.33	3.23	0.01	179.80	599	211
Average Cylinder Concentration:						595	209

	<u>CH₄</u>	<u>C₃H₈</u>
Previous Stated Concentration PPM:	<u>597</u>	<u>206</u>
Percent variance from Stated:	<u>0</u>	<u>1</u>

Cylinder gas tolerances based on CH₄ only

Meets Manufacturer Tolerance. Use manufacturers stated concentration ☒ **COMMENTS:**
 < =5% Outside Manufacturer Tolerance. Use manufacturers concentration ☐
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder ☐

Auditor: Al Clark **Date:** December 13, 2017
Operator Signature: [Signature] **Location:** McIntyre Center Edmonton



Calibration Gas Audit

CH₄ / C₃H₈ Cylinder Gas

File No. 2017-484CGA

Company: Maxxam Operators name: Mike
Cylinder #: LL107207 Conc CH₄ (PPM) 600/207 Tolerance (%) 2 Certified By: Praxair
Expiry Date: October 2025

Reference Calibrator and Gas:

Make/Model R&R MFC 201
Serial Number AMU 1690
Last Verification Date December 13, 2017
Gas Type CH₄ Conc. 990.4
Cylinder Number 5604875 Expiry Date July 2021
Gas Type C₃H₈ Conc. 246.5
Cylinder Number XF003845B Expiry Date July 2022

Flow Measurement Device:

Make/Model Mesa Definer 220
Serial Number H-133034 / L-132702
Temp. °C 23.1 C
B.P. 707 mmHg

Reference Analyzer:

Make/Model Teco 55i Serial/AMU Number: 2108
Instrument Settings Zero: N/A Span: N/A Range: 20.0
Last Calibration: Date: Dec 12/17 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH ₄	C ₃ H ₈			CH ₄	C ₃ H ₈
3500	0.0	0.00	0.00				
3618	80.4	13.28	12.77	0.02	45.00	598	209
3547	39.8	6.71	6.47	0.01	89.12	598	210
3560	19.8	3.35	3.26	0.01	179.80	602	213
Average Cylinder Concentration:						599	211

CH₄ **C₃H₈**
Previous Stated Concentration PPM: 600 207
Percent variance from Stated: 0 2

Cylinder gas tolerances based on CH₄ only

Meets Manufacturer Tolerance. Use manufacturers stated concentration ☒ COMMENTS:
< =5% Outside Manufacturer Tolerance. Use manufacturers concentration ☐
> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder ☐

Auditor: Al Clark Date: December 13, 2017
Operator Signature: Location: McIntyre Center Edmonton

APPENDIX III
MAXIMUM INSTANTANEOUS DATA



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - November 2018

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
DAY																													
1	1	1	1	0	0	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	0	0	1	1	0	1	1	24	
2	1	1	1	1	0	1	1	1	1	1	1	1	S	1	0	0	0	0	1	0	0	1	1	1	0	1	1	24	
3	0	0	0	0	1	1	1	1	1	1	1	S	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	24	
4	1	1	1	1	1	1	1	1	1	1	S	1	1	0	0	0	0	0	0	1	1	0	0	0	0	1	1	24	
5	0	0	0	0	1	0	1	0	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	24	
6	1	1	1	1	0	0	1	1	S	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	24	
7	1	1	1	1	1	1	1	S	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24	
8	0	0	0	0	0	0	S	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	24
9	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	24	
10	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	
11	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	
12	0	0	S	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0	1	0	24	
13	0	S	0	0	0	0	0	1	1	0	0	1	0	0	1	1	1	1	1	1	1	1	0	0	0	1	1	24	
14	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	24	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	24	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	24	
17	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0	24	
18	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0	24	
19	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	S	0	0	0	0	0	0	1	0	24	
20	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	S	1	1	0	0	0	0	0	1	1	24	
21	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	S	1	0	0	0	0	0	0	0	1	1	24	
22	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0	24	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	24	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	X	S	0	0	0	0	0	0	0	0	0	0	0	0	23	
25	0	0	0	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24	
26	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	
27	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	
28	0	0	0	0	0	0	0	0	0	S	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24	
29	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	
30	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
HOURLY AVG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

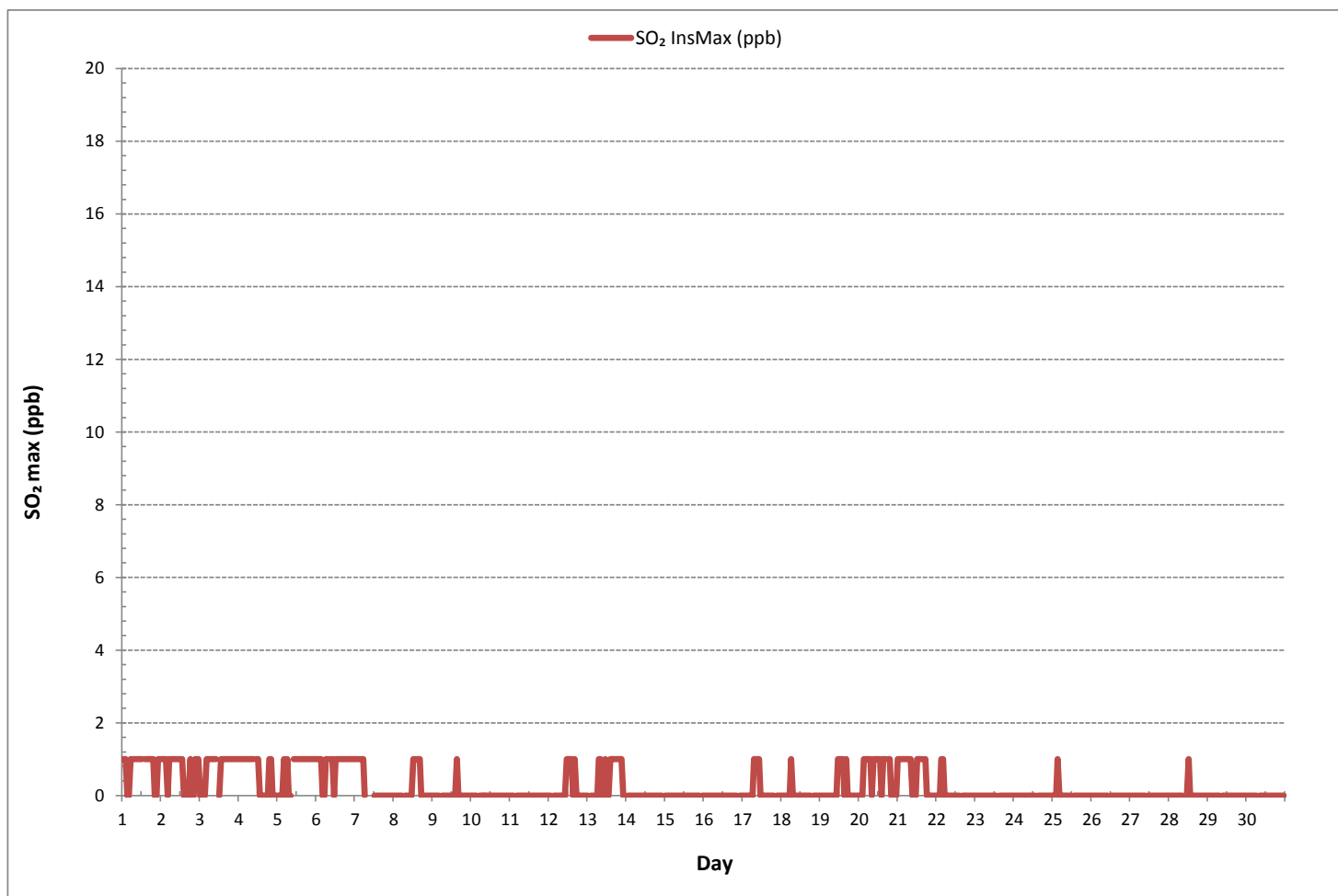
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		173					
MAXIMUM INSTANTANEOUS VALUE:		1	ppb	@ HOUR	0	ON DAY	1
IZS CALIBRATION TIME:		31	hrs	OPERATIONAL TIME:		719	hrs
MONTHLY CALIBRATION TIME:		4	hrs				
STANDARD DEVIATION:		0					

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - November 2018

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
DAY																												
1	0.14	0.15	0.14	0.16	0.15	0.16	0.18	0.17	0.14	0.12	0.13	0.11	0.11	S	0.16	0.13	0.12	0.15	0.13	0.12	0.11	0.12	0.15	0.14	0.11	0.18	0.14	24
2	0.14	0.13	0.12	0.12	0.13	0.13	0.13	0.11	0.12	0.11	0.12	0.11	S	0.15	0.11	0.14	0.14	0.16	0.17	0.16	0.20	0.30	0.37	0.32	0.11	0.37	0.16	24
3	0.30	0.32	0.32	0.31	0.17	0.16	0.15	0.15	0.16	0.15	0.15	S	0.17	0.14	0.14	0.13	0.13	0.17	0.14	0.13	0.14	0.16	0.16	0.14	0.13	0.32	0.18	24
4	0.14	0.14	0.14	0.15	0.22	0.43	0.39	0.24	0.17	0.15	S	0.19	0.16	0.16	0.20	0.21	0.22	0.23	0.21	0.21	0.19	0.22	0.20	0.21	0.14	0.43	0.21	24
5	0.20	0.20	0.19	0.22	0.19	0.18	0.17	0.18	0.17	S	0.24	0.22	0.23	0.23	0.23	0.22	0.24	0.24	0.21	0.23	0.23	0.23	0.22	0.22	0.17	0.24	0.21	24
6	0.21	0.21	0.22	0.24	0.24	0.25	0.25	0.24	S	0.29	0.25	0.34	0.35	0.26	0.21	0.22	0.23	0.23	0.20	0.23	0.25	0.25	0.26	0.26	0.20	0.35	0.25	24
7	0.26	0.26	0.28	0.27	0.27	0.28	0.28	S	C	C	C	C	C	C	0.24	0.26	0.26	0.26	0.26	0.27	0.24	0.23	0.22	0.21	0.21	0.28	0.26	24
8	0.23	0.23	0.25	0.26	0.32	0.32	S	0.37	0.33	0.27	0.26	0.25	0.25	0.24	0.24	0.20	0.21	0.18	0.20	0.20	0.21	0.17	0.21	0.21	0.17	0.37	0.24	24
9	0.22	0.21	0.21	0.21	0.22	S	0.24	0.20	0.20	0.20	0.21	0.21	0.21	0.18	0.24	0.33	0.20	0.21	0.22	0.30	0.35	0.31	0.23	0.18	0.18	0.35	0.23	24
10	0.16	0.16	0.15	0.15	S	0.16	0.16	0.17	0.18	0.18	0.16	0.22	0.19	0.23	0.20	0.17	0.18	0.17	0.13	0.12	0.12	0.13	0.13	0.13	0.12	0.23	0.16	24
11	0.15	0.16	0.15	S	0.18	0.17	0.16	0.18	0.18	0.18	0.19	0.18	0.18	0.17	0.17	0.18	0.18	0.16	0.15	0.18	0.18	0.18	0.16	0.16	0.15	0.19	0.17	24
12	0.19	0.18	S	0.22	0.19	0.18	0.18	0.19	0.23	0.20	0.19	0.17	0.18	0.18	0.18	0.18	0.18	0.18	0.15	0.16	0.16	0.16	0.15	0.15	0.15	0.23	0.18	24
13	0.15	S	0.18	0.15	0.14	0.17	0.17	0.15	0.14	0.14	0.13	0.14	0.11	0.11	0.13	0.14	0.15	0.16	0.16	0.13	0.16	0.13	0.11	0.08	0.08	0.18	0.14	24
14	S	0.13	0.11	0.10	0.11	0.10	0.10	0.11	0.10	0.12	0.10	0.07	0.14	0.12	0.14	0.12	0.11	0.10	0.10	0.10	0.11	0.10	0.10	S	0.07	0.14	0.11	24
15	0.16	0.12	0.13	0.15	0.16	0.16	0.16	0.14	0.12	0.13	0.12	0.10	0.12	0.13	0.13	0.11	0.13	0.15	0.14	0.15	0.20	0.22	S	0.25	0.10	0.25	0.15	24
16	0.20	0.18	0.17	0.17	0.17	0.15	0.16	0.17	0.16	0.18	0.18	0.20	0.23	0.21	0.18	0.20	0.26	0.27	0.27	0.23	0.23	S	0.27	0.23	0.15	0.27	0.20	24
17	0.22	0.21	0.22	0.24	0.25	0.23	0.22	0.24	0.26	0.26	0.24	0.25	0.28	0.23	0.22	0.22	0.21	0.21	0.22	0.19	S	0.22	0.20	0.20	0.19	0.28	0.23	24
18	0.19	0.21	0.19	0.18	0.18	0.18	0.22	0.25	0.21	0.21	0.21	0.21	0.22	0.22	0.21	0.20	0.20	0.19	S	0.19	0.16	0.15	0.16	0.15	0.15	0.25	0.20	24
19	0.15	0.16	0.17	0.19	0.21	0.20	0.18	0.18	0.19	0.19	0.19	0.16	0.15	0.14	0.15	0.16	0.19	0.19	S	0.19	0.15	0.14	0.13	0.14	0.13	0.21	0.17	24
20	0.13	0.13	0.14	0.13	0.14	0.13	0.14	0.14	0.15	0.15	0.14	0.14	0.12	0.13	0.12	0.13	0.13	S	0.17	0.14	0.12	0.12	0.11	0.10	0.10	0.17	0.13	24
21	0.09	0.11	0.11	0.10	0.12	0.09	0.09	0.09	0.08	0.06	0.08	0.09	0.08	0.05	0.07	0.07	S	0.09	0.06	0.05	0.09	0.08	0.05	0.07	0.05	0.12	0.08	24
22	0.08	0.11	0.12	0.14	0.14	0.11	0.09	0.06	0.09	0.08	0.07	0.06	0.07	0.08	0.06	S	0.14	0.08	0.08	0.10	0.06	0.07	0.08	0.06	0.06	0.14	0.09	24
23	0.11	0.12	0.13	0.11	0.12	0.11	0.13	0.09	0.11	0.12	0.12	0.13	0.12	0.11	S	0.13	0.12	0.11	0.12	0.11	0.13	0.11	0.12	0.12	0.09	0.13	0.12	24
24	0.10	0.11	0.12	0.10	0.12	0.11	0.11	0.12	0.12	0.12	0.11	0.15	0.14	X	S	0.19	0.17	0.19	0.22	0.20	0.19	0.15	0.12	0.13	0.10	0.22	0.14	23
25	0.15	0.23	0.25	0.27	0.24	0.20	0.19	0.18	0.17	0.16	0.14	0.15	S	0.19	0.16	0.14	0.14	0.12	0.14	0.16	0.14	0.14	0.14	0.15	0.12	0.27	0.17	24
26	0.14	0.15	0.14	0.14	0.15	0.15	0.13	0.13	0.14	0.13	0.13	S	0.18	0.17	0.15	0.16	0.18	0.17	0.18	0.17	0.16	0.17	0.17	0.15	0.13	0.18	0.15	24
27	0.14	0.14	0.11	0.14	0.13	0.12	0.11	0.13	0.12	0.14	S	0.15	0.14	0.13	0.12	0.12	0.13	0.15	0.15	0.16	0.12	0.14	0.11	0.10	0.10	0.16	0.13	24
28	0.10	0.12	0.20	0.20	0.20	0.19	0.22	0.25	0.24	S	0.18	0.16	0.15	0.13	0.12	0.13	0.11	0.11	0.11	0.10	0.10	0.10	0.11	0.09	0.09	0.25	0.15	24
29	0.08	0.08	0.19	0.07	0.08	0.10	0.08	0.09	S	0.10	0.09	0.12	0.15	0.12	0.10	0.09	0.09	0.08	0.07	0.19	0.09	0.07	0.07	0.07	0.07	0.19	0.10	24
30	0.05	0.06	0.07	0.09	0.08	0.08	0.09	S	0.13	0.10	0.11	0.12	0.11	0.12	0.09	0.12	0.11	0.11	0.12	0.12	0.11	0.11	0.12	0.14	0.05	0.14	0.10	24
HOURLY MAX	0.30	0.32	0.32	0.31	0.32	0.43	0.39	0.37	0.33	0.29	0.26	0.34	0.35	0.26	0.24	0.33	0.26	0.27	0.27	0.30	0.35	0.31	0.37	0.32				
HOURLY AVG	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.17	0.16	0.16	0.17	0.17	0.17	0.16	0.17	0.16	0.16	0.16	0.16				

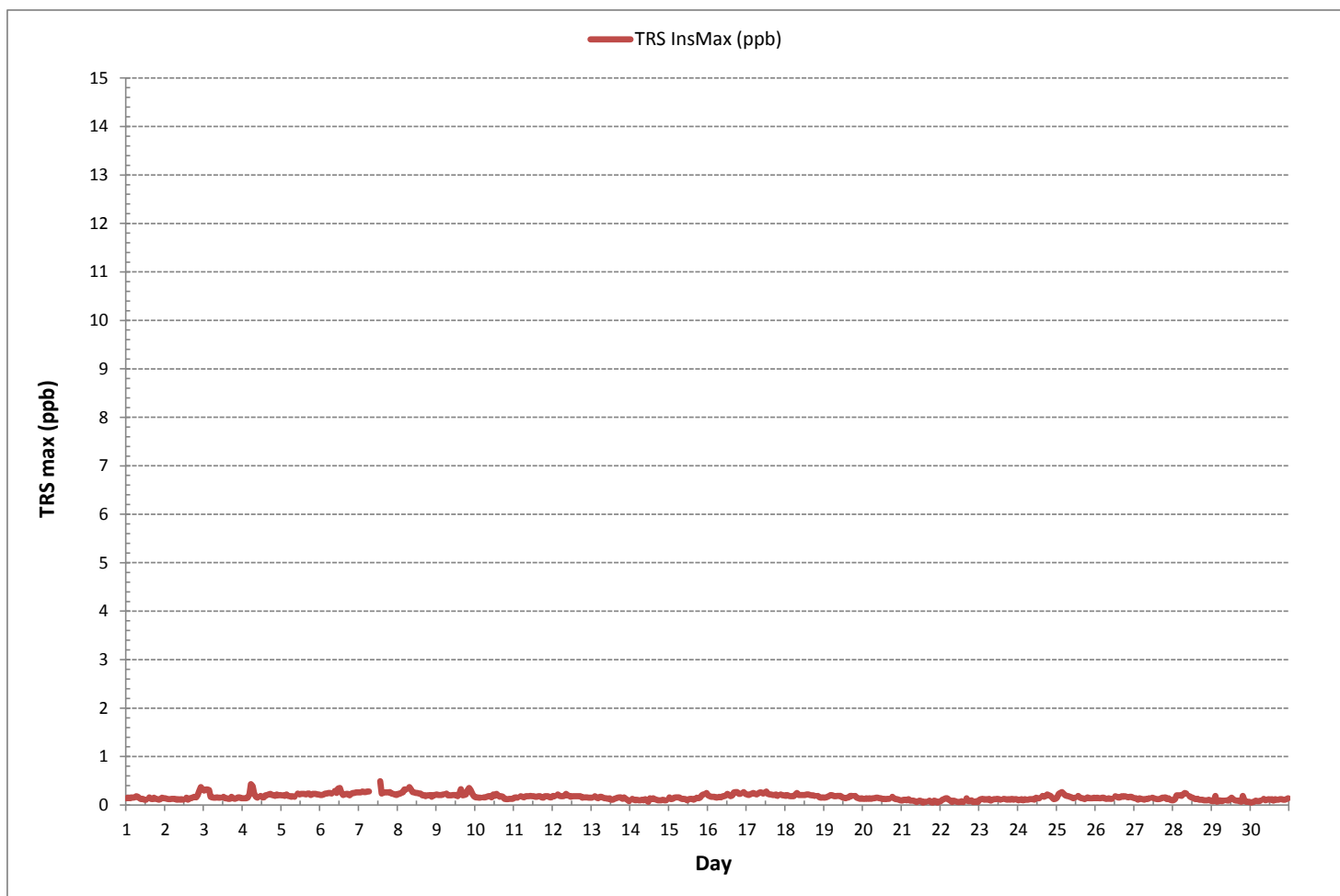
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		682							
MAXIMUM INSTANTANEOUS VALUE:		0.43	ppb	@ HOUR	5	ON DAY	4		
IZS CALIBRATION TIME:		31	hrs	OPERATIONAL TIME:				719	hrs
MONTHLY CALIBRATION TIME:		6	hrs						
STANDARD DEVIATION:		0.06							

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - November 2018

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	2.02	2.02	2.02	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	S	2.00	2.00	1.99	2.00	1.99	2.00	2.01	2.01	2.01	2.00	2.00	1.99	2.02	2.01	24
2	2.00	1.99	1.99	2.00	2.00	2.00	2.00	1.99	1.99	1.99	1.99	2.00	S	2.01	2.01	2.01	2.01	2.02	2.03	2.01	2.01	2.01	2.02	2.02	1.99	2.03	2.00	24	
3	2.01	2.01	2.05	2.03	2.00	2.00	2.01	2.01	2.00	2.00	2.01	S	2.00	2.00	2.01	2.01	2.00	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.00	2.05	2.01	24	
4	2.01	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.00	2.00	S	1.99	1.99	1.98	1.98	1.99	1.99	1.99	1.98	1.99	1.99	2.00	2.00	1.99	1.98	2.01	2.00	24	
5	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	S	2.00	2.00	2.00	2.00	2.01	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.00	2.00	1.99	2.01	2.00	24	
6	2.00	2.04	2.02	2.01	2.00	2.01	2.01	2.01	S	2.03	2.02	2.04	2.02	2.01	2.01	2.02	C	C	C	C	2.01	2.02	2.02	2.02	2.00	2.04	2.02	24	
7	2.03	2.04	2.04	2.05	2.05	2.05	2.05	S	2.07	2.05	2.04	2.03	2.03	2.05	2.04	2.06	2.07	2.09	2.09	2.09	2.08	2.07	2.06	2.07	2.03	2.09	2.06	24	
8	2.08	2.11	2.15	2.15	2.31	2.38	S	2.56	2.41	2.20	2.09	2.10	2.06	2.08	2.05	2.04	2.07	2.04	2.04	2.04	2.04	2.03	2.03	2.04	2.03	2.56	2.13	24	
9	2.05	2.05	2.05	2.05	2.04	S	2.04	2.03	2.03	2.03	2.05	2.08	2.07	2.04	2.13	2.17	2.07	2.07	2.05	1.99	2.00	2.00	1.99	1.98	1.98	2.17	2.05	24	
10	1.98	1.98	1.98	1.98	S	1.99	2.00	2.00	2.00	2.00	1.98	1.98	1.96	1.98	1.97	1.96	1.96	1.96	1.97	1.98	1.98	1.98	1.98	1.98	1.96	2.00	1.98	24	
11	1.99	1.98	1.98	S	1.98	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.97	1.96	1.97	1.98	2.00	1.99	1.98	1.96	1.96	1.96	2.00	1.98	24	
12	1.97	1.97	S	1.98	1.98	2.00	2.00	2.00	2.00	1.99	1.98	1.97	1.96	1.97	1.98	1.97	1.97	1.96	1.95	1.96	1.97	1.97	1.96	1.95	1.95	2.00	1.97	24	
13	1.96	S	1.95	1.95	1.94	1.97	1.97	1.97	1.96	1.95	1.95	1.95	1.94	1.95	1.97	1.97	1.98	1.98	1.97	1.96	1.97	1.97	1.92	1.91	1.91	1.98	1.96	24	
14	S	1.90	1.89	1.90	1.91	1.92	1.91	1.92	1.93	1.94	1.93	1.93	1.94	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.97	S	1.89	1.97	1.94	24	
15	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.96	1.96	S	1.96	1.94	1.97	1.95	24	
16	1.96	1.96	1.96	1.96	1.97	1.98	1.98	1.98	1.97	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.99	1.98	1.98	1.98	S	1.99	1.98	1.96	1.99	1.97	24	
17	1.99	1.98	2.01	2.02	2.04	2.04	2.05	2.05	2.05	2.05	2.04	2.02	2.02	2.01	2.01	1.99	1.99	1.98	1.98	1.97	S	1.95	1.94	1.94	1.94	2.05	2.01	24	
18	1.95	1.94	1.93	1.93	1.92	1.93	1.94	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.93	1.92	1.92	1.92	1.92	S	X	X	X	X	1.92	1.95	1.93	20	
19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	0	
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	0	
21	Y	Y	Y	Y	Y	Y	Y	Y	Y	C1	C1	C1	2.03	2.04	2.04	2.07	S	2.06	2.08	2.09	2.26	2.19	2.15	2.11	2.03	2.26	2.10	12	
22	2.12	2.15	2.18	2.15	2.11	2.11	2.02	2.01	2.02	2.03	2.03	2.02	2.03	2.04	2.03	S	2.01	2.04	2.03	2.03	2.05	2.07	2.07	2.08	2.01	2.18	2.06	24	
23	2.08	2.08	2.06	2.05	2.06	2.06	2.06	2.07	2.07	2.07	2.07	2.06	2.06	2.07	S	2.08	2.07	2.08	2.06	2.07	2.06	2.06	2.07	2.06	2.05	2.08	2.07	24	
24	2.06	2.06	2.06	2.06	2.06	2.07	2.06	2.06	2.06	2.06	2.06	2.07	2.08	X	S	2.08	2.08	2.09	2.08	2.08	2.08	2.08	2.08	2.07	2.06	2.09	2.07	23	
25	2.13	2.26	2.33	2.38	2.34	2.22	2.20	2.18	2.16	2.14	2.13	2.11	S	2.09	2.08	2.07	2.07	2.08	2.08	2.09	2.10	2.10	2.11	2.10	2.07	2.38	2.15	24	
26	2.12	2.15	2.14	2.15	2.17	2.14	2.12	2.10	2.10	2.11	2.12	S	2.13	2.13	2.15	2.15	2.16	2.14	2.15	2.15	2.15	2.16	2.18	2.15	2.10	2.18	2.14	24	
27	2.13	2.13	2.12	2.12	2.12	2.11	2.11	2.11	2.23	2.33	S	2.15	2.16	2.13	2.13	2.13	2.12	2.13	2.12	2.11	2.10	2.11	2.11	2.11	2.10	2.33	2.14	24	
28	2.12	2.13	2.16	2.16	2.17	2.19	2.21	2.46	2.62	S	2.32	2.23	2.18	2.16	2.14	2.13	2.12	2.11	2.08	2.07	2.06	2.06	2.10	2.05	2.05	2.62	2.17	24	
29	2.07	2.07	2.14	2.13	2.13	2.14	2.12	2.12	S	2.12	2.11	2.12	2.13	2.11	2.09	2.06	2.01	2.00	2.00	2.08	2.08	2.09	2.09	2.09	2.00	2.14	2.09	24	
30	2.09	2.10	2.11	2.11	2.09	2.08	2.07	S	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.07	2.06	2.11	2.07	24	
HOURLY MAX	2.13	2.26	2.33	2.38	2.34	2.38	2.21	2.56	2.62	2.33	2.32	2.23	2.18	2.16	2.15	2.17	2.16	2.14	2.15	2.15	2.26	2.19	2.18	2.15					
HOURLY AVG	2.03	2.04	2.05	2.05	2.05	2.05	2.03	2.06	2.06	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.02	2.02	2.02	2.03	2.04	2.04	2.03	2.03					

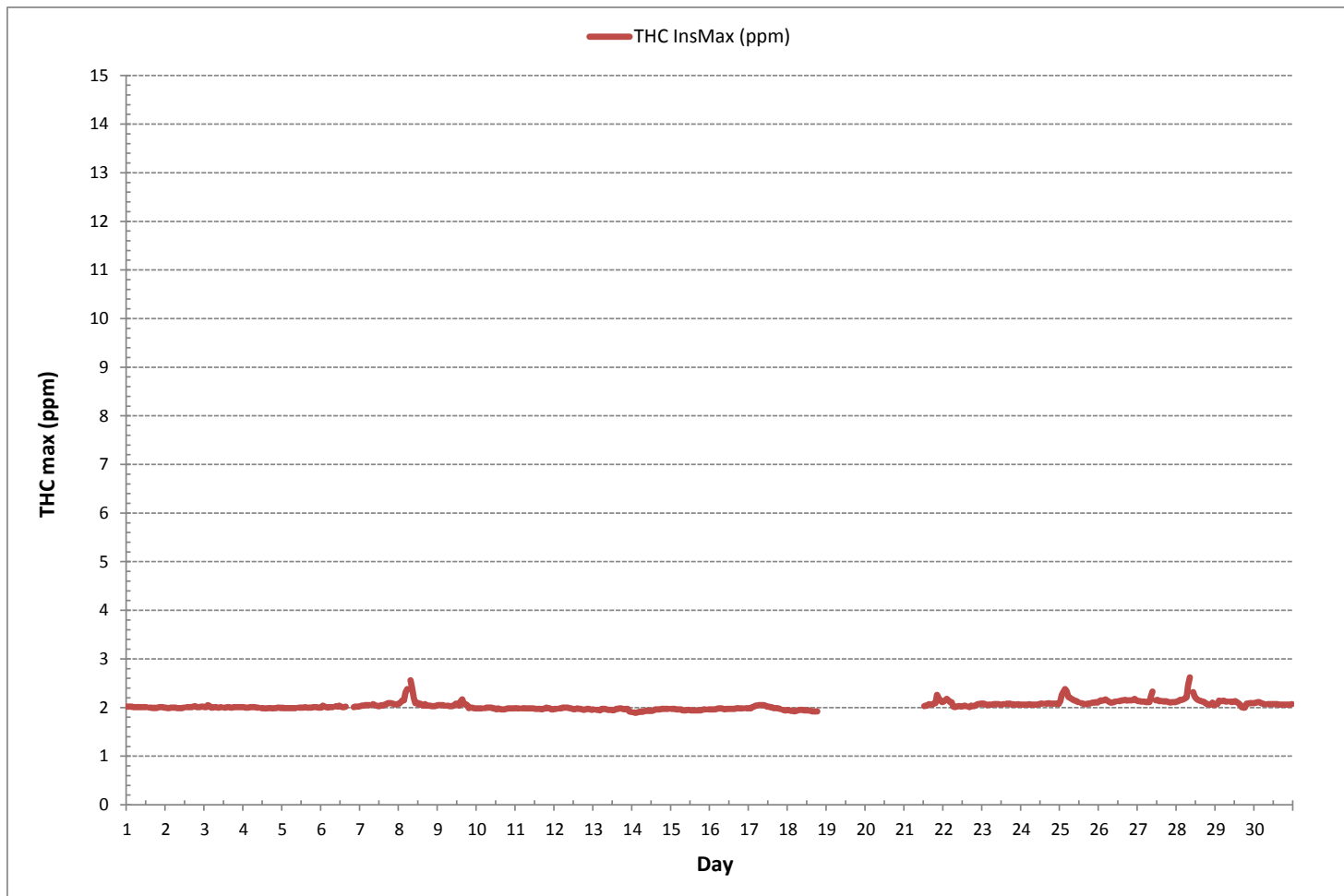
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	622				
MAXIMUM INSTANTANEOUS VALUE:	2.62	ppm	@ HOUR	8	ON DAY 28
IZS CALIBRATION TIME:	29	hrs	OPERATIONAL TIME:	655	hrs
MONTHLY CALIBRATION TIME:	4	hrs			
STANDARD DEVIATION:	0.08				

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - November 2018

METHANE MAX Instantaneous Maximum (CH₄ ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
DAY																													
1	2.02	2.02	2.02	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	S	2.00	2.00	1.99	2.00	1.99	2.00	2.01	2.01	2.01	2.00	1.99	2.02	2.01	24	
2	2.00	1.99	1.99	2.00	2.00	2.00	2.00	1.99	1.99	1.99	1.99	2.00	S	2.01	2.01	2.01	2.01	2.02	2.03	2.01	2.01	2.01	2.02	2.02	1.99	2.03	2.00	24	
3	2.01	2.01	2.05	2.03	2.00	2.00	2.01	2.01	2.00	2.01	2.01	S	2.00	2.00	2.01	2.01	2.00	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.00	2.05	2.01	24	
4	2.01	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.00	2.00	S	1.99	1.99	1.98	1.98	1.99	1.99	1.99	1.98	1.99	1.99	2.00	2.00	1.99	1.98	2.01	2.00	24	
5	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	S	2.00	2.00	2.00	2.00	2.01	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.00	2.00	1.99	2.01	2.00	24	
6	2.00	2.04	2.02	2.01	2.00	2.01	2.01	S	2.03	2.02	2.04	2.02	2.01	2.01	2.02	C	C	C	C	C	2.01	2.02	2.02	2.02	2.00	2.04	2.02	24	
7	2.03	2.04	2.04	2.05	2.05	2.05	S	2.07	2.05	2.04	2.03	2.03	2.05	2.04	2.06	2.07	2.09	2.09	2.09	2.08	2.07	2.06	2.07	2.06	2.07	2.03	2.09	2.06	24
8	2.08	2.11	2.15	2.15	2.31	2.38	S	2.38	2.36	2.20	2.09	2.10	2.06	2.08	2.05	2.04	2.07	2.04	2.04	2.04	2.03	2.03	2.03	2.04	2.03	2.38	2.12	24	
9	2.05	2.05	2.05	2.05	2.04	S	2.04	2.03	2.03	2.03	2.05	2.08	2.07	2.04	2.13	2.16	2.07	2.07	2.05	1.99	2.00	2.00	1.99	1.98	1.98	2.16	2.05	24	
10	1.98	1.98	1.98	1.98	S	1.99	2.00	2.00	2.00	1.98	1.98	1.96	1.98	1.97	1.96	1.96	1.96	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.96	2.00	1.98	24	
11	1.99	1.98	1.98	S	1.98	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.97	1.96	1.97	1.98	2.00	1.99	1.98	1.96	1.96	1.96	2.00	1.98	24	
12	1.97	1.97	S	1.98	1.98	2.00	2.00	2.00	1.99	1.98	1.98	1.97	1.96	1.97	1.98	1.97	1.97	1.96	1.95	1.96	1.97	1.97	1.96	1.95	1.95	2.00	1.97	24	
13	1.96	S	1.95	1.95	1.94	1.97	1.97	1.97	1.96	1.95	1.95	1.95	1.94	1.95	1.97	1.97	1.98	1.98	1.97	1.96	1.97	1.97	1.92	1.91	1.91	1.98	1.96	24	
14	S	1.90	1.89	1.90	1.91	1.92	1.91	1.92	1.93	1.94	1.93	1.93	1.93	1.94	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.97	S	1.89	1.97	1.94	24	
15	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.96	1.96	S	1.96	1.94	1.97	1.95	24	
16	1.96	1.96	1.96	1.96	1.97	1.98	1.98	1.98	1.97	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.99	1.98	1.98	1.98	S	1.99	1.98	1.96	1.99	1.97	24	
17	1.99	1.98	2.01	2.02	2.04	2.04	2.05	2.05	2.05	2.05	2.04	2.02	2.02	2.01	2.01	1.99	1.99	1.99	1.98	1.97	S	1.95	1.94	1.94	1.94	2.05	2.01	24	
18	1.95	1.94	1.93	1.93	1.92	1.93	1.94	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.93	1.92	1.92	1.92	1.92	S	X	X	X	X	1.92	1.95	1.93	20	
19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	0	
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	0	
21	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C1	C1	C1	2.03	2.04	2.04	2.05	S	2.06	2.08	2.09	2.17	2.17	2.15	2.11	2.03	2.17	2.09	12
22	2.12	2.15	2.16	2.15	2.11	2.07	2.02	2.01	2.02	2.03	2.03	2.02	2.03	2.04	2.03	S	2.01	2.04	2.03	2.03	2.05	2.07	2.07	2.08	2.01	2.16	2.06	24	
23	2.08	2.08	2.06	2.05	2.06	2.06	2.06	2.07	2.07	2.07	2.07	2.06	2.06	2.07	S	2.08	2.07	2.08	2.06	2.07	2.06	2.06	2.07	2.06	2.05	2.08	2.07	24	
24	2.06	2.06	2.06	2.06	2.06	2.07	2.06	2.06	2.06	2.06	2.06	2.07	2.08	X	S	2.08	2.08	2.09	2.08	2.08	2.08	2.08	2.08	2.07	2.06	2.09	2.07	23	
25	2.13	2.26	2.33	2.38	2.34	2.22	2.20	2.18	2.16	2.14	2.13	2.11	S	2.09	2.08	2.07	2.07	2.08	2.08	2.09	2.10	2.10	2.11	2.10	2.07	2.38	2.15	24	
26	2.12	2.15	2.14	2.15	2.17	2.14	2.12	2.10	2.10	2.11	2.12	S	2.13	2.13	2.15	2.15	2.16	2.14	2.15	2.15	2.15	2.16	2.18	2.15	2.10	2.18	2.14	24	
27	2.13	2.13	2.12	2.12	2.12	2.11	2.11	2.11	2.23	2.33	S	2.15	2.16	2.13	2.13	2.13	2.12	2.13	2.12	2.11	2.10	2.11	2.11	2.11	2.10	2.33	2.14	24	
28	2.12	2.13	2.16	2.16	2.17	2.18	2.21	2.30	2.34	S	2.23	2.20	2.18	2.16	2.14	2.13	2.12	2.11	2.08	2.07	2.06	2.06	2.10	2.05	2.05	2.34	2.15	24	
29	2.07	2.07	2.14	2.13	2.13	2.12	2.12	2.12	S	2.12	2.11	2.12	2.13	2.11	2.09	2.06	2.01	2.00	2.00	2.08	2.08	2.09	2.09	2.09	2.00	2.14	2.09	24	
30	2.09	2.10	2.11	2.11	2.09	2.08	2.07	S	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.07	2.06	2.11	2.07	24	
HOURLY MAX	2.13	2.26	2.33	2.38	2.34	2.38	2.21	2.38	2.36	2.33	2.23	2.20	2.18	2.16	2.15	2.16	2.16	2.14	2.15	2.15	2.17	2.17	2.18	2.15					
HOURLY AVG	2.03	2.04	2.05	2.05	2.05	2.05	2.03	2.05	2.05	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.02	2.02	2.02	2.03	2.03	2.03	2.03	2.03					

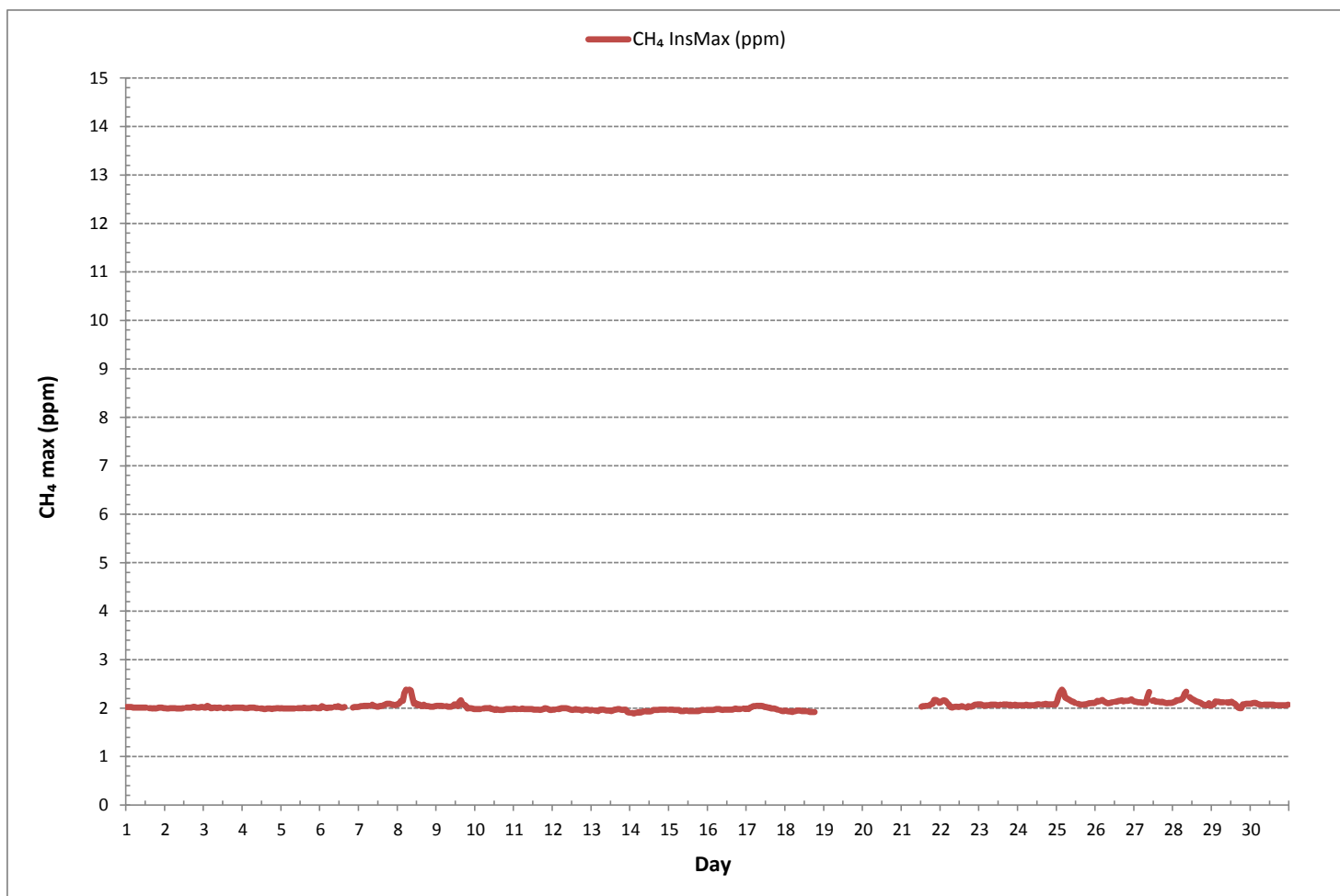
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	622
MAXIMUM INSTANTANEOUS VALUE:	2.38 ppm @ HOUR 5 ON DAY 8
IZS CALIBRATION TIME:	29 1.89
MONTHLY CALIBRATION TIME:	4 2.38
STANDARD DEVIATION:	0.08 2.15
OPERATIONAL TIME:	655 hrs

METHANE MAX Instantaneous Maximum (CH₄ ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - November 2018

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
DAY																													
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
8	0.00	0.00	0.00	0.00	0.00	0.00	S	0.18	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.01	24	
9	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24	
10	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
11	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
12	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
13	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
14	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24	
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24	
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	24	
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	24	
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	X	X	X	X	0.00	0.00	0.00	20	
19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
21	Y	Y	Y	Y	Y	Y	Y	Y	Y	C1	C1	C1	0.00	0.00	0.00	0.02	S	0.00	0.00	0.00	0.09	0.02	0.00	0.00	0.00	0.09	0.01	12	
22	0.00	0.00	0.02	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	24	
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23	
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
28	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.16	0.29	S	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.03	24	
29	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	24	
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
HOURLY MAX	0.00	0.00	0.02	0.00	0.00	0.04	0.00	0.18	0.29	0.00	0.09	0.04	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.00	0.00					
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					

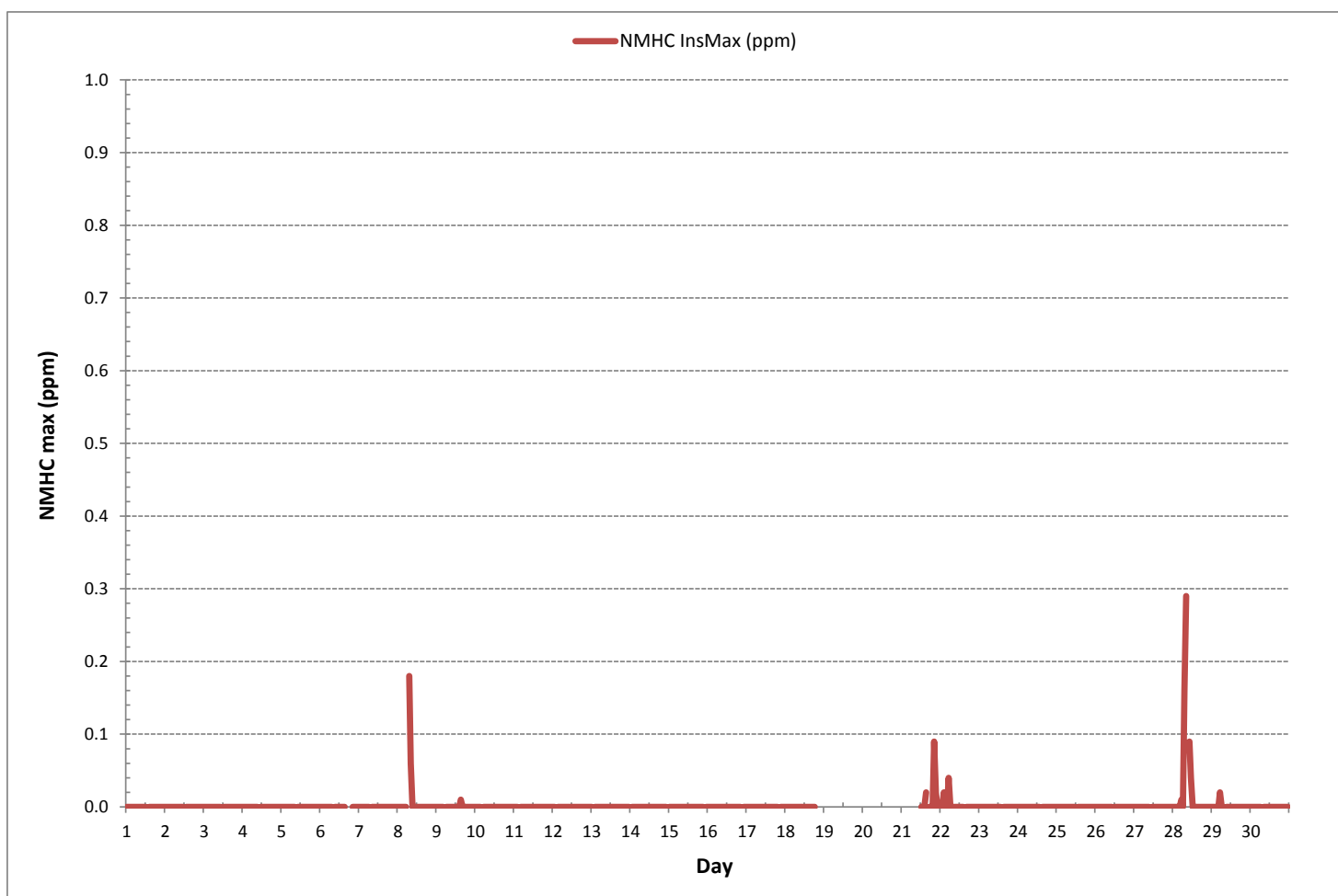
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		14					
MAXIMUM INSTANTANEOUS VALUE:		0.29	ppm	@ HOUR	8	ON DAY	28
IZS CALIBRATION TIME:		29	0.00	OPERATIONAL TIME:		655	hrs
MONTHLY CALIBRATION TIME:		4	0.29				
STANDARD DEVIATION:		0.02	0.03				

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - November 2018

WIND SPEED Instantaneous Maximum (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
DAY																												
1	19.4	18.6	19.7	15.6	13.0	11.9	8.0	6.1	5.4	5.2	3.3	5.3	8.5	10.0	9.7	7.4	8.1	9.4	11.2	10.5	8.9	15.2	13.2	16.5	3.3	19.7	10.8	24
2	20.4	21.2	20.9	21.7	18.8	16.1	17.5	20.0	18.7	15.8	10.3	9.1	8.1	5.9	3.9	5.3	4.4	3.3	5.3	5.4	8.7	10.8	9.1	7.6	3.3	21.7	12.0	24
3	7.8	8.2	5.4	15.9	20.3	17.1	12.3	12.9	9.2	8.1	9.5	10.0	9.8	11.2	10.1	9.4	12.7	12.6	13.3	17.0	20.4	17.5	15.9	21.5	5.4	21.5	12.8	24
4	18.7	18.7	20.6	20.6	22.4	21.7	24.3	24.4	22.1	21.6	24.3	25.3	24.7	25.0	24.0	25.1	19.9	21.4	20.9	17.6	17.8	16.2	10.7	10.7	10.7	25.3	20.8	24
5	8.0	11.4	9.1	11.5	11.1	11.2	8.7	5.5	6.1	8.5	11.1	8.7	10.0	9.5	10.5	9.0	8.6	9.0	5.0	3.7	2.4	2.9	7.3	3.4	2.4	11.5	8.0	24
6	2.1	2.5	2.3	4.4	6.3	4.6	4.2	4.3	3.5	5.6	7.6	7.5	10.6	11.2	12.3	11.5	10.7	7.1	9.4	10.8	9.9	7.3	5.1	5.6	2.1	12.3	6.9	24
7	4.8	4.3	4.8	5.9	3.6	4.6	4.9	4.6	6.7	5.4	5.8	4.6	9.3	11.6	10.3	11.1	11.2	7.5	8.1	7.8	5.9	6.6	7.0	5.2	3.6	11.6	6.7	24
8	4.1	5.3	4.4	3.9	3.2	3.3	3.4	4.3	4.3	5.7	5.3	8.6	14.8	11.7	14.6	15.5	11.8	12.2	14.7	14.7	13.7	16.3	17.2	18.4	3.2	18.4	9.6	24
9	14.0	14.0	13.3	17.8	21.3	12.5	11.2	14.6	6.1	8.2	10.7	7.1	6.0	8.5	7.0	6.3	7.4	9.2	11.1	16.0	15.7	15.6	10.8	7.4	6.0	21.3	11.3	24
10	4.8	3.1	3.4	2.8	4.6	4.1	4.5	3.0	3.0	2.1	4.5	10.8	17.9	18.4	18.3	16.3	9.2	2.6	3.0	3.3	1.0	1.9	3.8	5.2	1.0	18.4	6.3	24
11	6.9	6.7	12.1	14.8	12.7	12.0	14.1	13.1	6.6	8.2	7.9	8.7	10.6	12.6	11.1	7.9	6.3	5.6	10.2	14.4	17.3	17.5	16.1	16.2	5.6	17.5	11.2	24
12	18.4	14.6	13.2	10.9	13.6	11.2	10.0	13.0	13.2	14.3	14.1	16.9	19.3	22.8	19.8	14.7	15.6	15.2	15.1	10.8	11.0	14.7	14.8	21.8	10.0	22.8	15.0	24
13	14.2	14.5	21.1	23.8	21.0	9.8	17.4	16.8	23.6	24.2	20.2	18.3	17.3	16.6	15.6	17.4	16.0	12.5	18.3	21.9	22.5	24.7	22.0	24.8	9.8	24.8	18.9	24
14	27.4	19.3	26.4	28.3	17.4	13.8	19.2	24.9	17.5	11.8	9.8	9.9	11.3	15.3	13.5	11.4	13.5	12.1	9.5	13.9	18.3	14.1	14.6	14.0	9.5	28.3	16.1	24
15	14.5	17.6	18.9	17.8	17.6	13.0	12.1	10.8	10.8	12.9	15.4	15.7	17.0	21.2	24.9	25.4	22.2	21.2	24.3	23.0	23.9	22.9	21.9	21.7	10.8	25.4	18.6	24
16	20.4	18.0	15.6	13.7	7.0	5.0	1.6	2.6	4.0	4.4	4.6	8.3	12.8	18.7	20.1	18.3	16.6	17.5	20.5	17.4	18.6	23.1	25.9	19.9	1.6	25.9	13.9	24
17	12.3	8.1	11.9	11.6	12.4	13.3	8.1	7.2	7.5	6.7	3.6	3.5	3.2	4.4	7.7	15.0	20.0	15.6	18.2	15.4	14.6	18.9	16.5	21.1	3.2	21.1	11.5	24
18	20.9	17.5	18.4	14.0	13.1	13.1	18.6	25.2	20.1	21.0	17.4	16.7	14.0	10.2	12.1	8.8	6.1	3.0	2.1	6.5	8.9	8.6	4.5	3.6	2.1	25.2	12.7	24
19	11.5	16.7	16.6	15.9	18.2	14.6	13.5	14.4	14.0	13.5	17.6	14.1	20.4	17.7	15.6	16.5	13.5	10.3	8.7	9.4	8.4	7.9	6.9	11.5	6.9	20.4	13.6	24
20	10.9	7.5	8.7	13.8	10.5	22.6	27.5	12.0	5.6	9.1	15.2	22.0	23.9	19.9	12.1	13.6	13.2	16.8	18.1	15.6	12.5	8.0	13.8	11.1	5.6	27.5	14.3	24
21	13.1	15.4	19.1	20.4	16.0	18.2	15.4	15.1	13.6	10.9	9.9	9.8	15.9	11.6	8.3	6.5	7.5	5.2	4.2	5.3	5.9	6.1	9.8	6.8	4.2	20.4	11.2	24
22	10.9	10.0	11.9	22.1	19.3	15.5	17.2	26.1	25.8	22.9	24.3	25.7	23.1	23.7	20.3	19.6	14.4	8.5	8.8	11.5	13.5	14.6	13.1	16.2	8.5	26.1	17.4	24
23	19.9	18.6	19.5	17.7	14.4	4.5	6.6	4.1	5.9	5.1	6.2	5.9	6.4	11.5	11.0	12.3	13.9	12.1	11.1	10.2	6.9	7.4	7.8	7.8	4.1	19.9	10.3	24
24	10.4	10.9	9.7	11.1	13.5	5.4	4.5	4.2	7.5	14.8	13.1	12.9	11.7	8.1	6.1	4.6	2.9	3.3	1.7	0.5	1.5	1.7	2.5	2.6	0.5	14.8	6.9	24
25	4.8	4.9	4.4	4.8	6.1	6.0	7.6	8.9	10.6	11.2	11.1	15.9	13.6	10.3	15.9	10.5	9.1	12.4	15.5	12.6	22.3	14.8	11.1	5.4	4.4	22.3	10.4	24
26	7.7	6.5	4.7	6.9	6.8	7.5	9.7	7.0	5.8	7.0	5.4	4.3	7.7	9.8	6.1	6.8	11.7	12.7	9.4	8.8	8.3	4.6	10.4	14.3	4.3	14.3	7.9	24
27	12.1	10.1	9.0	8.8	7.5	6.6	6.7	7.8	8.0	8.9	10.5	11.3	14.7	10.5	9.7	10.8	11.6	12.7	13.7	10.6	6.4	4.1	3.8	4.8	3.8	14.7	9.2	24
28	4.9	8.4	12.9	13.3	13.5	12.5	13.5	12.4	15.6	10.4	10.5	14.2	16.3	14.6	15.8	17.1	22.2	18.6	20.1	18.1	14.6	11.4	14.6	19.5	4.9	22.2	14.4	24
29	17.6	13.7	10.8	10.7	8.6	7.8	5.8	7.5	5.8	4.3	3.6	6.8	7.5	7.2	9.4	11.5	13.0	11.5	8.7	10.0	8.8	8.4	4.9	3.5	3.5	17.6	8.6	24
30	2.6	4.5	5.2	7.6	8.5	7.9	10.0	10.4	8.7	7.8	8.3	8.6	7.7	8.0	8.2	7.9	7.3	4.9	3.9	3.7	3.0	2.3	2.9	3.9	2.3	10.4	6.4	24
HOURLY MAX	27.4	21.2	26.4	28.3	22.4	22.6	27.5	26.1	25.8	24.2	24.3	25.7	24.7	25.0	24.9	25.4	22.2	21.4	24.3	23.0	23.9	24.7	25.9	24.8				

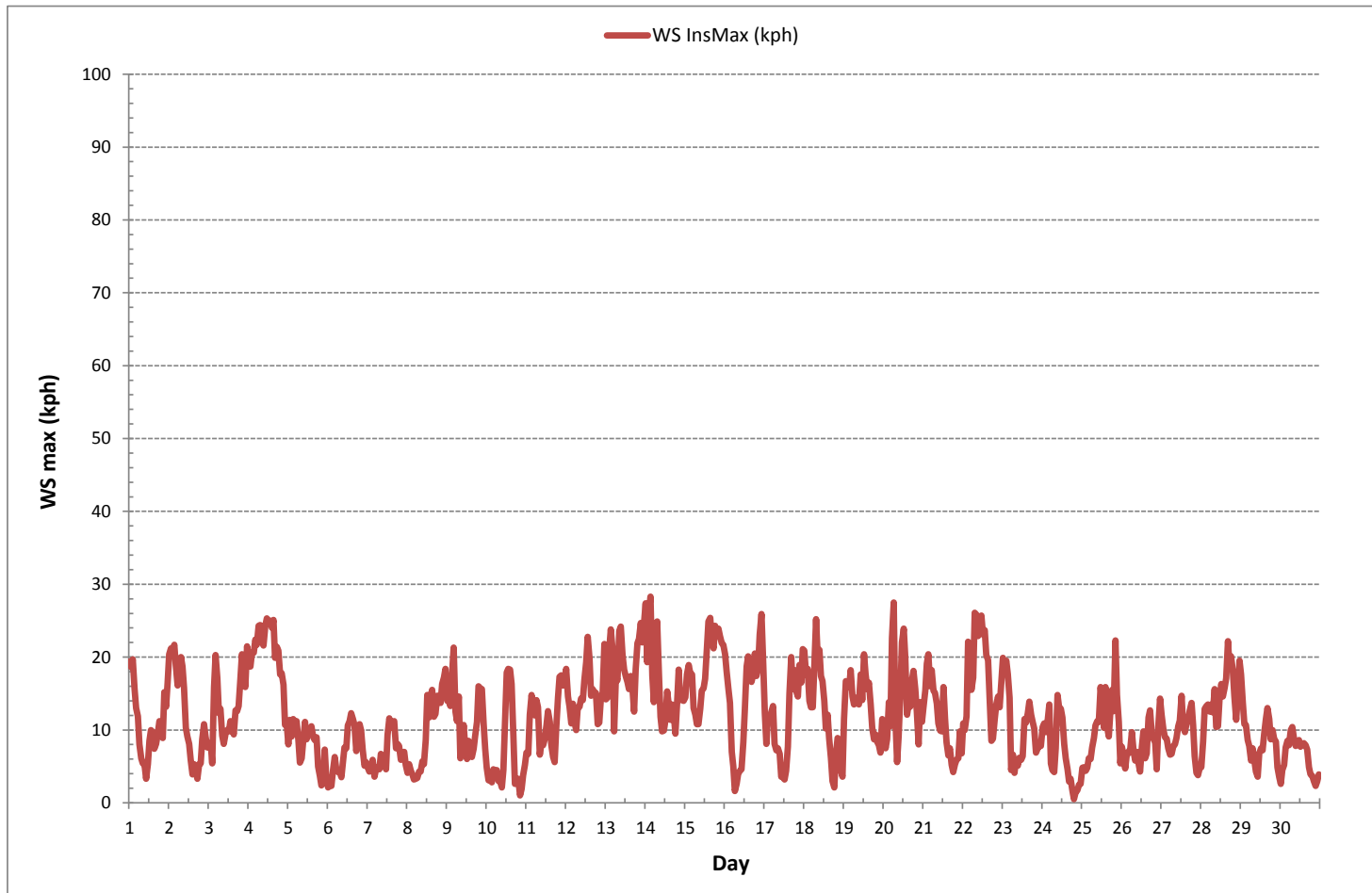
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	28.3	kph	@ HOUR	3	ON DAY	14
OPERATIONAL TIME:				720	hrs	

WIND SPEED Instantaneous Maximum (WS kph)

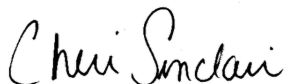


APPENDIX IV
REPORT CERTIFICATION FORM

Report Certification Form

Alberta Airshed (if applicable)	EPA Approval or Code of Practice Registration # (if applicable)
YES	NA
Company Name (if applicable)	Industrial Operation Name (if applicable)
Peace River Area Monitoring Program Committee	Three Creeks 842b Station
Name of the Representative of the Person Responsible	Position / Title of the Representative of the Person Responsible
Mike Bisaga / Lily Lin	Technical Program Managers
Is an External Party Certifying the Report? (If 'Yes', fill in the fields below for the external person.)	
☒ Yes ☐ No	
Name of External Person Certifying the Report	Position / Title of External Person Certifying the Report
Cheri Sinclair	Supervisor, Customer Service, Air Services
Company Name for the External Person Certifying the Report	Identification of Qualifications / Professional Designations of the External Person Certifying the Report
Maxxam Analytics, A Bureau Veritas Group Company	B.Sc.

Maxxam Analytics is the designated contractor conducting monitoring and reporting activities. I certify that the submitted data has been (a) reviewed and validated as per the AMD Chapter 6: Ambient Data Quality. I certify that the submitted report (b) accurately reflects the monitoring results and reporting timeframe and (c) meets the specified analysis, summarization and reporting requirements as per the AMD Chapter 9: Reporting.



Signature of the External Person Certifying the Report

18 - Dec - 2018

Report Issued Date (dd-mon-yyyy)

APPENDIX V
DATA VALIDATION CERTIFICATION FORM

Validation Certificate Form

Client: Peace River Area Monitoring Program Committee

Project #: 8449-2018-11-80-C

Site: Three Creeks 842b Station

Contact: Karla Reesor

Level 0 Preliminary Verification

Carla Reesor

Date 17 - Dec - 2018

Level 1 Primary Validation

Carla Reesor

Date 17 - Dec - 2018

Level 2 Final Validation

Carla Reesor

Date 18 - Dec - 2018

Level 3 Independent Data Review

Cheri Smolani

Date 18 - Dec - 2018

Post-Final Validation

NA

Date NA

Notes

The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. This validation is performed on an annual basis.